EXHIBIT 1

(FILED UNDER SEAL)

UNITED STATES DISTRICT COURT

NORTHERN DISTRICT OF CALIFORNIA

SAN JOSE DIVISION

CONCORD MUSIC GROUP, INC., ET AL.,

Plaintiffs,

v.

ANTHROPIC PBC,

Defendant.

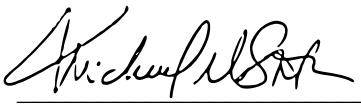
Case No. 5:24-cv-03811-EKL-SVK

DESIGNATED HIGHLY CONFIDENTIAL ATTORNEYS' EYES ONLY

Judge Eumi K. Lee
Magistrate Judge Susan van Keulen

EXPERT REPORT OF PROFESSOR MICHAEL D. SMITH

Dated: December 19, 2025



Michael D. Smith

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APPENDIX 1 - CV I

APPENDIX 2 I

I. Qualifications, Experience, and Compensation

1. I am currently the J. Erik Jonsson Professor of Information Technology and Public Policy and the Co-Director of the Initiative for Digital Entertainment Analytics at Carnegie Mellon University's Heinz College. I specialize in the economics of digitization and the industrial organization of markets for digital information and digital media products, including the impact of artificial intelligence on intellectual property.

2. I have held academic positions at Carnegie Mellon University since 2000. My research has been published in leading Management Science, Economics, and Marketing journals and covered by professional journals, including *The Harvard Business Review* and *The Sloan Management Review*, as well as press outlets, including *The Economist*, *The Wall Street Journal*, *The New York Times*, *Wired*, and *Business Week*. I have served on the editorial boards of a variety of top journals, including as a Senior Editor at *Information Systems Research* and as an Associate Editor at *Management Science and Management Information Systems Quarterly*.

3. I am the author of two published books that analyze how technological developments and big data are reshaping the entertainment industry and the higher education industry—STREAMING, SHARING, STEALING: BIG DATA AND THE FUTURE OF ENTERTAINMENT (2016), co-authored with Rahul Telang, and THE ABUNDANT UNIVERSITY: REMAKING HIGHER EDUCATION FOR A DIGITAL WORLD (2023). I have also co-authored several papers analyzing the impact of piracy on markets for legal content and surveying the academic literature on the impact of piracy. These papers were published in peer-reviewed journals including, *Communications of the Association of Computing Machinery*, *Information Economics and Policy*, *International Journal of the Economics of Business*, *International Journal of Industrial Organization*, *Information Systems Research*, *Journal of Industrial Economics*, *Management Information Systems Quarterly*, *Management Science*, *and Marketing Science*; law journals including, *The Columbia Journal of Law & the Arts*

and *The George Mason University Law Review*; as well as by organizations including the U.S. Patent and Trademark Office, the World Trade Organization, the World Intellectual Property Organization, the National Bureau of Economic Research, and the Hudson Institute, a non-partisan think tank. My published research has been reprinted in the *International Library of Critical Writings in Economics* series on the Economics of Digitization and the *International Library of Critical Writings in Economics* series on the Economics of E-Commerce.

4. I have testified twice before Senate Judiciary Subcommittees: on July 16, 2025, to the Subcommittee on Crime and Counterterrorism in a hearing titled "*Too Big to Prosecute?: Examining the AI Industry's Mass Ingestion of Copyrighted Works for AI Training*"; and on March 10, 2020, to the Subcommittee on Intellectual Property in a hearing titled "*Copyright Law in Foreign Jurisdictions: How are other countries handling digital piracy?*" In 2024, I was one of the ten academic economists named by the U.S. Copyright Office to produce a report studying "economic issues at the intersection of artificial intelligence and copyright policy."[1]

5. I have received several awards for my research, teaching and writing, including the INFORMS ISS Distinguished Fellow Award (which "recognize[s] individuals who have made outstanding intellectual contributions to the information systems discipline"),[2] the INFORMS ISS Practical Impacts Award (which "honors distinguished information systems academics who have

[1] Brent A. Lutes, ed., *Identifying the Economic Implications of Artificial Intelligence for Copyright Policy*, UNITED STATES COPYRIGHT OFFICE (Feb, 2025), https://www.copyright.gov/economic-research/economic-implications-of-ai/.

[2] "ISS Distinguished Fellow Award," INFORMS, *available at* https://www.informs.org/Recognizing-Excellence/Community-Prizes/Information-Systems-Society/ISS-Distinguished-Fellow-Award.

demonstrated outstanding leadership and sustained impact on the industry"),[3] the National Science Foundation's CAREER Research Award, the 2017 Carol & Bruce Mallen Award for lifetime published scholarly contributions in the economics of the motion picture industry, the 2018 Dick Wittink Award for the best paper published in the journal *Quantitative Marketing and Economics,* the 2009 and 2004 Best Teacher Awards in Carnegie Mellon's Masters of Information Systems Management program, and the 2024 Phillip E. Frandson Award for Literature and the 2025 MIT Press Alumni Book Award for THE ABUNDANT UNIVERSITY: REMAKING HIGHER EDUCATION FOR A DIGITAL WORLD.

6. I hold a Ph.D. in Management Science and Information Technology from the Sloan School of Management at MIT, a Master of Science in Telecommunications Science from the University of Maryland, and a Bachelor of Science in Electrical Engineering (*summa cum laude*) from the University of Maryland. Much of my Ph.D. coursework and empirical training was in MIT's economics department. Prior to receiving my Ph.D., I worked in the telecommunications and information systems industries, first with GTE in their Associate Development Program, a training program for GTE's future business leaders, and subsequently with Booz Allen Hamilton as a member of their telecommunications client service team. While with GTE, I was awarded a patent for research applying fuzzy logic and artificial intelligence techniques to the design and operation of telecommunications networks. A copy of my full CV is attached as **Appendix 1**.

7. I have previously submitted a declaration in this matter.[4] I have previously either testified as an expert at deposition or submitted an expert declaration in: *Warner Records Inc, et*

[3] "ISS Practical Impacts Award," INFORMS, *available at* https://www.informs.org/Recognizing-Excellence/Community-Prizes/Information-Systems-Society/ISS-Practical-Impacts-Award.

[4] *See* ECF Nos. 52, 95, 182, 227.

al. v Altice USA Inc., 2:23-cv-00576-JRG-RSP (E.D.T.X.); *Bartz et al. v. Anthropic PBC*, 3:24-cv-05417-WHA (N.D. Cal.); and *In re Google Generative AI Copyright Litigation*, 5:23-cv-03440-EKL (N.D. Cal.).

8. I have also submitted testimony to the United States Copyright Royalty Judges on behalf of Settling Devotional Claimants in the 2018–2021 distribution of cable royalty funds.

9. I am compensated at the rate of $750 per hour for my time in connection with this case. My compensation is not contingent upon my findings, the testimony I may give, or the outcome of this litigation.

II. Scope of Engagement

10. I have been engaged by counsel for Plaintiffs ("Publishers") to analyze the academic literature studying the present and future economic impact of Generative Artificial Intelligence and "Large Language Models" on the legal sales and markets for creative content and output.

11. I have also been asked to offer an opinion on the economic impact of Anthropic's unauthorized use of Publishers' copyrighted works, including any effects of Anthropic's unauthorized uses of Publishers' song lyrics upon the potential markets for or value of Publishers' song lyrics, any harm to Publishers and the songwriters they represent from such uses, and the economic benefits Anthropic has reaped from its unauthorized and uncompensated uses of Publishers' copyrighted materials.

12. In offering my opinions, I have applied my education, background, and scholarship in the fields of economics, intellectual property, digital piracy, Generative AI, and my general understanding of market licensing of creative content to the facts and issues of this case. In doing so, I have reviewed certain docket filings from this case, documents produced in discovery, reports from other of Publishers' experts, deposition transcripts, academic journals and studies, public

news reporting, public statements by Anthropic and Anthropic personnel, Anthropic's Public Comments to the U.S. Copyright Office's Notice of Inquiry Regarding Artificial Intelligence and Copyright, and the market for license agreements for song lyrics as detailed and expressly cited herein. The full list of documents and materials I have reviewed and relied on is cited herein and/or attached as **Appendix 2**.

13. Additionally, for the purposes of my analysis, I assume Anthropic is liable for copyright infringement of Publishers' asserted works. I do not offer any legal opinions regarding Anthropic's actual liability or any of its asserted defenses in this case.

III. Summary of Opinions

14. Based on my review and analysis of information from this case, my experience with Generative AI, economics, licensing markets, and digital piracy, and my years of study and education, the below is a summary of my opinions at this time. I reserve the right to supplement or modify my opinions as appropriate based on any newly learned information.

15. First, Anthropic dilutes and disrupts the actual and potential markets for Publishers' copyrighted works with AI-generated market substitutes. Specifically, and as I discuss below in § V.A, by training its Claude AI models on Publishers' copyrighted works and lyrics, Anthropic has enabled Claude to generate purportedly "original" lyrics that Anthropic's users and customers can incorporate into new songs that directly compete with Publishers' copyrighted works, including through direct diminishment of revenue sharing from streaming platforms like Spotify. This harm is actual and happening now, but it may also carry a potential existential threat to the Publishers' industry as a whole.

16. Second, Anthropic's unlicensed copying and use of Publishers' lyrics subverts the burgeoning licensing market for AI training data. Specifically, and as I discuss below in § V.B.1, a licensing market for use of Publishers' works as AI training data already exists, and Publishers

are active participants in that rapidly growing market, but Anthropic's unlicensed practice of copying Publishers' lyrics by "scraping" them from the Internet undermines certain necessary preconditions for that licensing market to exist.

17. Third, Anthropic's unlicensed copying of Publishers' works deprived Publishers of significant licensing revenue that Publishers would have earned if Anthropic had entered into a license for the use and display of their works. Specifically, and as I discuss below in § V.B.2, Publishers generate significant revenue from licensing the right to display and reproduce their lyrics to numerous entities for a variety of distinct purposes. By training its Claude AI models on Publishers' lyrics, Anthropic has enabled Claude to display and reproduce Publishers' lyrics for free, depriving Publishers of significant revenue they would have earned if Anthropic had sought and received a license from Publishers.

18. Fourth, Anthropic's conduct enables the creation of unauthorized derivative works, including potentially reputationally damaging and unrestricted AI-generated derivative outputs. Specifically, and as I discuss below in § V.B.3, by copying and training its Claude AI models on Publishers' works, Anthropic enabled its Claude AI models to generate unauthorized derivative works for which Publishers require a license. Anthropic's conduct also enabled Anthropic's AI models to create potentially offensive and reputationally damaging AI-generated outputs that contain derivatives of Publishers' works. This conduct deprived Publishers of (1) the revenue they would have received if Anthropic had sought and received a license and (2) the ability to impose contractual restrictions and protections through such license, including takedown rights, that would prevent, limit, or reduce damaging derivatives.

19. Fifth, Anthropic's conduct damages the market value of Publishers' works. Specifically, and as I discuss below in § V.B.4, the unlicensed copying of Publishers' works damages

the overall value of those works, in an analogous way to the impact of digital piracy on the value of creative works in the consumer marketplace.

20. Sixth, with a market valuation between $183 and $350 billion, Anthropic generates substantial revenue and value from training its Claude AI models on copyrighted content, including Publishers' works. *See* VI.A.

21. Seventh, the generation, modification, summarization, and searching of music lyrics are attractive "use cases" for Anthropic's Claude AI models that "draw" users and customers to Anthropic's service. *See* VI.B.

22. Last, Anthropic received payments from its third-party users who prompted Claude to generate outputs containing the lyrics to Publishers' Works-in-Suit. *See* VI.C.

IV. Background on Generative AI and Music Publishing

A. Generative AI and its Impact

23. The rapid development of Generative Artificial Intelligence ("AI" or "Generative AI")[5] is poised to change the way people and businesses operate across the world. Generative AI also comes with the potential for immense global economic growth—with some estimates of as much as $4.4 trillion in value added annually.[6] As more and more firms seek to adopt AI tools for their businesses, companies that develop, license, and provide these AI tools and systems will have increasingly high market value. As AI licensing and deployment by companies increases over time, its economic impact will similarly grow—perhaps exponentially—in the next several years.

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[5] *See* Expert Report of Ben Zhao (Dec. 19, 2025) (the "Zhao Report"), at ¶ 13 (describing Gen AI).

[6] Yiwen Lu, *Generative A.I. Can Add $4.4 Trillion in Value to Global Economy, Study Says*, NEW YORK TIMES (June 14, 2023), https://www.nytimes.com/2023/06/14/technology/generative-ai-global-economy.html.

24. At a high level, generative AI developers, such as Anthropic, operate on a technology licensing and direct-to-consumer model. After the technology is developed, AI developers offer product licenses to commercial customers as well as make their AI products directly available to retail consumers through chatbots on website interfaces, and often with monthly paid subscriptions for upgraded services. This revenue model is a consumer-driven one and capable of generating massive amounts of revenue, including from advertising, much like it does for large tech firms such as Google. In September 2025, Anthropic reported that it raised $13 billion in Series F funding at a $183 billion valuation, and in August 2025 it reached monthly revenues in excess of $479 million.[7]

25. All companies that create products, whether real or intellectual, have a cost of the goods sold. Companies like Nike must pay for fabric, Nestlé must pay for cocoa, and IKEA must pay for wood. Companies regularly pay for their raw materials, and they then factor the cost of those raw materials into the price of their products. The same is true in the context of intellectual property. Netflix pays for movie rights, Apple pays for patents, and Spotify pays for music licenses. These companies are paying for the intellectual property that they use, sell, or license.

26. For AI models like Claude, the raw materials are the training materials—such as Publishers' lyrics—and the ultimate products are the model's query responses. As is the case for other firms, there is no economic reason for Anthropic or any AI company to get a free pass from paying for the content that they use to make money. Indeed, in its filing to the Copyright Office's

[7] *See* below § VI.A.

Notice of Inquiry on AI, Anthropic explicitly says "[w]e recognize the importance of proactively addressing the perspectives of rights holders, artists, and creators."[8]

27. In just over two years, Anthropic has soared in valuation from approximately $5 billion in May 2023,[9] to $183 billion in September 2025,[10] to $350 billion valuation as of November 2025, following a $5 billion investment from Microsoft and another $10 billion investment from Nvidia.[11] Anthropic has benefited from several other high-profile partnerships and received billions more dollars from other large tech firms including Google—which agreed to invest up to $2 billion in the company[12]—and Amazon, which recently invested up to $4 billion.[13] Anthropic has also reportedly signed a multiyear deal with Google Cloud worth more than $3 billion.[14]

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[8] *Public Comments of Anthropic PBC*, ANTHROPIC (Oct. 30, 2023), https://perma.cc/8DBX-H3XU.

[9] Krystal Hu and Jaiveer Shekhawat, *Google-backed Anthropic raises $450 mln in latest AI funding*, REUTERS (May 23, 2023), https://www.reuters.com/markets/deals/alphabet-backed-ai-startup-anthropic-raises-450-million-funding-freeze-thaws-2023-05-23.

[10] *Anthropic raises $13B Series F at $183B post-money valuation,* ANTHROPIC (Sept. 2, 2025), https://www.anthropic.com/news/anthropic-raises-series-f-at-usd183b-post-money-valuation.

[11] Ashley Capoot and MacKenzie Sigalos, *Anthropic valued in range of $350 billion following investment deal with Microsoft, Nvidia,* CNBC (Nov. 18, 2025), https://www.cnbc.com/2025/11/18/anthropic-ai-azure-microsoft-nvidia.html; Aditya Soni, *Microsoft, Nvidia to invest in Anthropic as Claude maker commits $30 billion to Azure,* REUTERS (Nov. 18, 2025), https://www.reuters.com/technology/anthropic-commits-30-billion-microsoft-azure-compute-2025-11-18/.

[12] Berber Jin and Miles Kruppa, *Google Commits $2 Billion in Funding to AI Startup Anthropic*, WALL STREET JOURNAL (Oct. 27, 2023), https://www.wsj.com/tech/ai/google-commits-2-billion-in-funding-to-ai-startup-anthropic-db4d4c50.

[13] Steve Dent, *Amazon bets $4 billion on OpenAI rival Anthropic*, ENGADGET (Sept. 25, 2023), https://www.engadget.com/amazons-invests-4-billion-in-anthropic-openai-rival-095321755.html.

[14] Berber Jin and Miles Kruppa, *Google Commits $2 Billion in Funding to AI Startup Anthropic*, WALL STREET JOURNAL (Oct. 27, 2023), https://www.wsj.com/tech/ai/google-commits-2-billion-in-funding-to-ai-startup-anthropic-db4d4c50.

B. Background on Music Publishers and the Licensing of Musical Compositions

1. Music Publishers' Economic Model

28. Plaintiffs in this case are music publishers. They include both large music publishers in the case of Universal Music Publishing Group ("UMPG")[15] and Concord, and smaller-sized publishers in the case of ABKCO and Capitol Christian Music Group ("CCMG"). Music publishers own or control exclusive rights to the copyrights in musical compositions through contracts with songwriters under which the songwriters assign or grant exclusive rights in the copyrights to the music publisher. The musical compositions Plaintiffs own or control, including those asserted in this case, are some of the most well-known songs in popular music by many of the most celebrated songwriters.[16]

29. Music publishers facilitate the creation of musical compositions, providing financial support to songwriters and helping them to exploit the works they create so that the songwriters can focus their efforts on creating songs. Music publishers promote, market, and license musical compositions, administer licenses, collect royalties, and provide other important functions on behalf of songwriters. Music Publishers pay songwriters advances and royalties from the revenues generated by the exploitation of their works.[17]

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[15] For purposes of this Report, when I refer to "UMPG," I refer to the collective UMPG plaintiff group as that term has been understood by the parties in this litigation.

[16] Declaration of Duff Berschback in Support of Plaintiffs' Motion for Preliminary Injunction, ECF No. 184 ("Berschback Decl.") ¶¶ 4-7; Declaration of Alisa Coleman in Support of Plaintiffs' Motion for Preliminary Injunction, ECF No. 185 ("Coleman Decl.") ¶ 4– 8; Declaration of Kenton Draughon in Support of Plaintiffs' Motion for Preliminary Injunction, ECF No. 186 ("Draughon Decl.") ¶¶ 4– 8; Declaration of David Kokakis in Support of Plaintiffs' Motion for Preliminary Injunction, ECF No. 187 ("Kokakis Decl.") ¶¶ 4-7.

[17] D. Kokakis Tr. 34:22–35:6; Kokakis Decl. ¶ 15; Berschback Declaration ¶ 5; Coleman Decl. ¶ 5; Draughon Decl. ¶ 10.

30. Music publishers, and the songwriters they represent, monetize the copyrights in musical compositions by licensing rights in the compositions in multiple ways. That includes licensing songs to be recorded and distributed in analog and digital formats, the streaming of musical compositions, the printing of sheet music, the public performance of music, and myriad other forms of licensing for the use of musical compositions in television and movies, commercials, and by social media platforms.[18]

31. Plaintiffs' exclusive copyright interests in their catalogs of musical compositions are among their primary corporate assets, and their compositions hold great economic value to the respective plaintiffs.[19] Critical to their success is the ability to control and commercially exploit their musical compositions as they see fit. Unauthorized uses of their copyrighted works disrupt Publishers' businesses and cause economic and other losses to publishers and their songwriters.[20]

2. The Licensing of Song Lyrics

32. Music Publishers license rights in the lyrics of their musical compositions, either standing alone or among other rights granted in a licensing agreement. There is an established market through which music publishers, including Plaintiffs, license their lyrics to lyric aggregators or lyric websites, streaming services, social media platforms, karaoke businesses, and others for many different uses.[21]

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[18] Berschback Decl. ¶ 11; Coleman Decl. ¶ 12; Draughon Decl. ¶¶ 10–11; Kokakis Decl. ¶¶ 10–11.

[19] Berschback Decl. ¶ 6; Coleman Decl. ¶ 8, 13; Kokakis Decl. ¶ 6; Draughon Decl. ¶ 6.

[20] Coleman Decl. ¶ 23; Draughon Decl. ¶ 20; Kokakis Decl. ¶¶ 10, 16; Berschback Decl. ¶ 10, 14, 16, 19.

[21] Berschback Decl. ¶ 11–12; Coleman Decl. ¶¶ 10–12; Draughon Decl. ¶¶ 11–12; Kokakis Decl. ¶¶ 10– 12.

33. These licenses are generally contracted on a catalog-wide basis, where the music publisher grants certain rights in the lyrics of all of the musical compositions in their catalogs (sometimes excluding certain songwriters). The licenses include limitations and restrictions designed to safeguard and control music publishers' rights in the lyrics.[22]

a. Lyric Aggregators and Lyric-Display Sites

34. Lyric Aggregators are services that license rights in song lyrics, specifically, from music publishers. Lyric aggregators obtain rights from music publishers for lyric search, lyric display, lyric translation, and other related rights in lyrics, including, often, the right to sublicense rights in lyric search and display to others. The right to sublicense may be subject to approval by the music publisher.

35. For example, LyricFind is a service that allows users to search for and see the display of song lyrics on demand.[23] LyricFind also sublicenses those rights to other platforms.[24] Concerning its "Lyric Display" service, LyricFind says, "Lyrics are one of the top search terms on the Internet. With 88% of music streaming subscribers looking for lyrics while listening to music, including lyrics on your platform will drive engagement and enjoyment from your existing users."[25]

36. Publishers have each entered into license agreements with LyricFind, [redacted]

[redacted]

[22] Berschback Decl. ¶ 13; Coleman Decl. ¶¶ 14–15; Kokakis Decl. ¶ 13; Draughon Decl. ¶¶ 13–15.

[23] LYRICFIND, https://lyrics.lyricfind.com/.

[24] *Our Products*, LYRICFIND, https://www.lyricfind.com/products.

[25] *Lyric Display*, LYRICFIND, https://www.lyricfind.com/products/lyric-display.

[redacted]

37. Another lyric aggregator that Publishers license to is MusixMatch, which offers similar features to LyricFind.[27] Publishers have each entered into license agreements with MusixMatch, [redacted]

38. A third lyric aggregator is Genius.[29] [redacted][30]

39. I discuss the above agreements Publishers have with LyricFind, MusixMatch and Genius in more detail in § V.B.2, below.

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[26] *See, e.g.*, UMPG_0000018093; Kokakis Decl. ¶ 12; Concord_0000000168 [redacted] Berschback Decl. ¶ 12; ABKCO_0000000052 [redacted] Coleman Decl. ¶ 12; CCMG_0000000208 ([redacted] Draughon Decl. ¶ 12.

[27] MUSIXMATCH, https://www.musixmatch.com/discover.

[28] *See, e.g.*, UMPG_0000000335 [redacted]); Kokakis Decl. ¶ 12; ABKCO_0000000045 [redacted] Coleman Decl. ¶ 12; CCMG_0000000237 ([redacted]); Draughon ¶ 12; Concord_0000000212 [redacted]).

[29] GENIUS, https://genius.com/.

[30] *See, e.g.*, UMPG_0000000311 [redacted]); Kokakis Decl. ¶ 12; ABKCO_0000000328 [redacted] Coleman Tr. 69–72; Pittenger Tr. 95–96; Concord_0000016732 [redacted].

b. Other Licensees Granting Rights in Lyrics

40. Publishers have also licensed their lyrics to streaming services, such as Apple Music, Spotify, Google/YouTube, or Amazon, directly or through sublicenses, which can display lyrics alongside the song being streamed.[31] These lyric licenses are valuable to Publishers. For example, [redacted].[32]

41. UMPG has similar lyric-rights agreements with Apple, Spotify and Amazon. [redacted][33]

42. UMPG has a lyrics-specific agreement with Spotify [redacted][34] UMPG also has a [redacted] with Amazon [redacted].[35]

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[31] Coleman Decl. ¶ 12; Berschback Decl. ¶ 12; Kokakis Decl. ¶ 12; Draughon ¶ 12.

[32] UMPG_0000023282–99 § 2.3.

[33] UMPG_0000000388–97; UMPG_0000023090–93.

[34] UMPG_0000023257–75.

[35] UMPG_0000000275–77; UMPG_0000000366–72.

43. Publishers have also issued licenses to numerous online services and platforms, authorizing those services to display the lyrics to Publishers' musical compositions along with other granted rights. In those agreements, lyrics constitute an important part of the overall value of these licenses.[36] Publishers have licensed their catalogs to social media sites such as Facebook (Meta), Snap, and TikTok.[37]

44. Publishers have agreements with many other licensees for the use of their lyrics both digitally and in print. These include licenses with karaoke companies like Touchtunes and Singa, sheet music and songbook publishers such as Alfred or Hal Leonard, greeting card companies such as Hallmark, and even religious organizations.[38]

3. Market for Licensing Individual Compositions

45. In addition to licenses for their full catalogs, Publishers also routinely license whole, or parts of, individual songs. Such licenses may include a wide variety of uses, such as printing lyrics on merchandise (e.g., posters, clothing, and coffee mugs), use in advertising, motion pictures and television programs, books, and greeting cards, and others.[39]

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[36] Berschback Decl. ¶ 12.

[37] Kokakis Decl. ¶ 12; Coleman Decl. ¶ 12; Draughon Decl. ¶ 12; *see also, e.g.*, ABKCO_0000001324-35 (TikTok license); ABKCO_0000000414 (Facebook license); ABKCO_0000000230 (Snap license); CCMG_0000001265 (TikTok license); *see also, e.g.*, CCMG_0000000869 (Meta license); CCMG_0000000217 (Snap license); Concord_0000000220 (Snap license); Concord_0000000739 (Meta license); UMPG_0000000532 (Meta license); UMPG0000023040 (Snap license); UMPG_0000000373 (TikTok license).

[38] Coleman Decl. ¶ 12; Kokakis Decl. ¶ 11; Draughon Decl. ¶ 11; Berschback Decl. ¶ 11; CCMG_0000000655 (Hal Leonard license); UMPG_0000023728 (Hal Leonard license); ABKCO_0000000069 (Alfred license); Concord_0000000058 (Hal Leonard license).

[39] Coleman Decl. ¶¶ 11–12; Kokakis Decl. ¶¶ 11–12; Draughon Decl. ¶¶ 11–12; Berschback Decl. ¶¶ 11-12.

46. Publishers also frequently enter into "lyrical sample" licenses with third parties, in which music publishers grant the right to use a portion of musical composition in another song-writer's work. These licenses are individually negotiated, taking into consideration the value of the licensed work and the likely commercial value of the licensee's work.[40]

4. Licenses to AI Companies

47. Musical compositions and song lyrics are also valuable in the licensing market for use by AI companies. UMPG and Concord have engaged in licensing discussions with multiple companies concerning licensing for AI.[41] UMPG has entered into licensing agreements with Udio and Klay Vision in the second half of 2025, which are discussed in Section IV, below.

C. The Licensing Market for Creative, Copyrighted Content by Generative AI Companies

1. Generative AI Needs Text Data on Which to Train

48. Generative AI models require large amounts of text data on which the models are trained. As discussed in the Copyright Office report, *Identifying the Economic Implications of Artificial Intelligence for Copyright Policy*, "One of the primary forms of generative AI is a 'large language model' (LLM), where a developer 'trains' a model on large amount of text data and then makes this pre-trained model (commercially) available for end users. . . . During training, these models are fed vast amounts of data, which they use to learn patterns and features at multiple levels."[42]

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[40] *See* Kathleen Dilaurenti, *Music Sampling*, JOHNS HOPKINS SHERIDAN LIBRARIES & UNIVERSITY MUSEUMS BLOG (Mar. 15, 2018), https://blogs.library.jhu.edu/2018/03/music-sampling/.

[41] Kokakis Tr. 184–242; Berschback Tr. 161–68.

[42] Brent A. Lutes, ed., *Identifying the Economic Implications of Artificial Intelligence for Copyright Policy*, U.S. COPYRIGHT OFFICE (Feb. 2025), https://www.copyright.gov/economic-research/economic-implications-of-ai/Identifying-the-Economic-Implications-of-Artificial-Intelligence-for-Copyright-Policy-FINAL.pdf, at 4, 6.

49. The text on which the models are trained are frequently copyrighted works. "Foundational models are known for ingesting huge volumes of data, often including copyrighted materials. In the context of generative AI, those models are often ingesting creative works, many of which fall under copyright protection."[43] One of Anthropic's 30(b)(6) witnesses, Benjamin Mann, testified for Anthropic as follows: "I would say every commercial model and open-source model that I'm aware of contains copyrighted works in addition to Anthropic's models. I guess I would say that's an industry-standard practice."[44] Similarly, Jared Kaplan, Anthropic's Chief Science Officer, admitted that "Anthropic does train models on text that is copyrighted."[45]

50. AI companies can try to obtain the text and creative works they require for training their models by means not authorized by the copyright holders, or they can agree to license the copyrighted works from the owners for Generative AI training.

2. A Rapidly Expanding Generative AI-Content Licensing Market Exists

51. Over the past three years and continuing today, multiple AI companies have entered into widely reported license agreements concerning a variety of forms of creative content, from music, to journalism, to books, images, and social media posts. These examples demonstrate a growing creative content licensing market where AI companies license copyrighted content from a variety of rights holders for uses in training their models and more.

52. In fact, there has been an amazing amount of licensing between rights holders and generative AI companies over the last 24 months. For example, the Copyright Alliance keeps a

[43] *Id* at 31.

[44] B. Mann 30(b)(6) Tr. 29:17–23.

[45] J. Kaplan Tr. 345:19–20.

running list of publicly announced AI licensing deals by copyright owners.[46] Other prominent examples include Stability AI's agreement with AudioSparx to train its Stable Audio (an AI music generator),[47] Eleven Music's licensing agreement with Kobalt,[48] and OpenAI's recent and high-profile licensing agreement with The Walt Disney Company,[49] and many more. *See* **Exhibit A**.

3. Licensing Copyrighted Lyrics for Generative AI Training

53. Lyrics are a form of text that can be used to train a generative AI model and Anthropic has used Publishers' lyrics to train Claude. *See* Expert Report of Shawn Shan (Dec. 19, 2025) (the "Shan Report"), ¶ 40.

54. As described in the Zhao Report, in the context of AI, song lyrics are not just another piece of writing, often due to their unusual structure, inclusion of non-standard verbiage, and content. Zhao Report ¶ 70. Anthropic may also have "fine-tuned" Claude, whereby Anthropic reinforced the model's responses to certain prompts in a supervised learning process. *Id.* ¶¶ 75–80. In other words, for Claude to generate outputs involving the creation or delivery of Publishers' lyrics, the trainer had to direct the AI model to use Publishers' lyrics from the training dataset. *Id.* ¶¶ 16, 21, 79–83. Thus, the relative prominence of Publishers' lyrics in the Claude system is likely greater than that of ordinary prose.

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[46] *AI Licensing by Copyright Owners*, COPYRIGHT ALLIANCE, https://copyrightalliance.org/artificial-intelligence-copyright/licensing/copyright-owners/ (last visited Dec. 19, 2025).

[47] Emilia David, *Stability AI Releases AI Audio Platform*, THE VERGE (Sept. 13, 2023), https://www.theverge.com/2023/9/13/23871635/stability-ai-generative-audio-model-platform.

[48] Tim Ingham, *Exclusive: Kobalt's AI Deal with Suno Rival Elevenlabs Guarantees Publishing 'Parity' with Recorded Music,* MUSIC BUSINESS WORLDWIDE (Aug. 5, 2025), https://www.musicbusinessworldwide.com/kobalts-ai-suno-most-favored-nation/.

[49] *The Walt Disney Company and OpenAI reach landmark agreement to bring beloved characters from across Disney's brands to Sora,* OPENAI (Dec. 11, 2025), https://openai.com/index/disney-sora-agreement/.

55. As such, while Claude could be trained without Publishers' compositions, the lyrics appear to have a disproportionate economic value to Anthropic given their relative weight in the AI models.

56. Anthropic has spoken to the importance of song lyrics as training material for Claude. As the August 22, 2024 Declaration of Anthropic's Dr. Jared Kaplan (ECF No. 209 ¶ 35) states:

> Although they are an infinitesimal portion of the total data available on the Internet, song lyrics may be useful to include in the training corpus because they add to the diversity of training data. For instance, song lyrics deploy human language differently than do news articles, which deploy human language differently than novels, which deploy human language differently than speeches, and so on. Song lyrics often incorporate use of figurative language, such as metaphor, simile, or personification, that a model needs to understand in order to interpret the full range of human input.

57. Anthropic further stated in its Opposition to Preliminary Injunction Motion (Aug. 22, 2024), ECF No. 207: "In addition to the sheer volume of tokens, LLMs like Claude require diversity among the types of tokens they are trained on. These are, after all, general purpose tools, which will have no familiarity with any genre of content they have not encountered. For the model to be able to respond sensibly to queries about rap music, or cheesecake recipes, or physics equations, it must have been shown examples of texts that approximate those concepts." (emphasis added).

58. And Anthropic witness Daniela Amodei testified in deposition that it was a "fair assumption" that Claude could generate output with supposedly new/original lyrics because it was trained using "training data that included song lyrics."[50]

[50] Daniela Amodei Tr. 189:20–190:1.

59. Thus, Anthropic needs song lyrics as training data both for the diversity of training its model to understand human prompts and to be best able to assist users across a wide range of tasks, as well as for the particular purpose of being able to respond to queries concerning music and lyrics specifically. There is no question that there is a market for licensing song lyrics for training a generative AI model such as Claude.

V. Anthropic Harms Publishers in Multiple Ways

A. Anthropic's Claude Dilutes and Disrupts the Actual and Potential Markets for Publishers' Copyrighted Works with Market Substitutes

60. It is no hyperbole to say that Generative AI and large language models ("LLMs"), like Anthropic's Claude, are a first-of-its-kind technology. So much so, that I have struggled to identify appropriate analogous technologies to draw comparison. I am not aware if there has ever been a technology capable of, at scale, ingesting existing content—in this case, human-written, copyrighted text—in order to generate displacing market substitutes for that ingested content—in this case, the generation of purportedly "original" lyrics to new songs. Certainly, we haven't seen this at the rate or ease demonstrated by Claude and other Generative AI models.

61. The best analogy I can draw is to simple IP theft—that is, the unauthorized taking and distribution of protected content in a secondary and competing "black" market, which has the effect of disrupting and displacing demand in the primary, legitimate market. In this analogous setting, Anthropic takes protected content—like Publishers' copyrighted lyrics—and uses that content to train its Claude AI models. Anthropic then allows those trained models to generate "original" lyrics for Anthropic's requesting users and customers, who can then upload songs containing those AI-generated lyrics (including lyrics generated from Claude) to digital streaming platforms, like Spotify, where those songs with AI-generated lyrics directly compete against Publishers' copyrighted works as market substitutes. In other words, Anthropic relies on Publishers'

copyrighted works to create new songs that compete with those same copyrighted works in the same market. This presents a potentially existential market disruption and dilution of the songwriting industry.

62. By "market disruption," I mean a sudden and systemic decrease in market power for existing market participants, in this case, songwriters.[51] Prominent examples include how Netflix's DVD-by-mail service disrupted Blockbuster's market power by creating a new way for consumers to rent DVDs that was systemically challenging for Blockbuster to respond to. Here, the disruption effect is similar, if not necessarily the means: Claude's ability to create AI-generated lyrics disrupts the market for human-generated lyrics and does so by using tools that perversely rely on the IP of the very songwriters being replaced.

63. By "market dilution," I mean a decline (or dilution) in market demand for an existing product, following the introduction of a new market substitute, without a commensurate increase in the relevant consumer base. Here, as I discuss below, because AI-generated lyrics can act as market substitutes for human-generated lyrics, an increase in the availability of the former will naturally reduce demand for the latter, absent any change in the total number of consumers for music lyrics. In May 2025, the U.S. Copyright Office discussed the real potential for this type of market-dilution harm as a result of Generative AI training in a pre-publication report on

[51] *See* Michael D. Smith, THE ABUNDANT UNIVERSITY, Ch. 9 (MIT Press 2023) (discussing how digital abundance of information disrupts the university business model); *see also* Michael D. Smith and Rahul Telang, STREAMING, SHARING, STEALING: BIG DATA AND THE FUTURE OF ENTERTAINMENT, Ch. 4 (MIT Press 2016) (discussing how digital piracy disrupts the entertainment business); *see also* Joshua Gans, *The Other Disruption*, HARVARD BUS. REVIEW (March 2016).

"Copyright and Artificial Intelligence."[52] Specifically, the U.S. Copyright Office concluded that "[t]he speed and scale at which AI systems generate content pose a serious risk of diluting markets for works of the same kind as in their training data."[53]

64. In the sections below, I review the public reporting and academic literature regarding the potential for AI-generated lyrics to act as market substitutes for human-generated lyrics. I also assess Anthropic's stated goals for Claude's advancement as it relates to the music publishing industry, and I analyze Claude's current usage by customers for creating song lyrics.[54] At bottom, while I believe the harm from training Claude on Publishers' copyrighted works is potentially existential to the music publishing industry, I also believe that precisely measured damages are not quantifiable with any reasonable degree of certainty.

1. Academic Analysis and Public Reporting Demonstrate How Large Language Models Create Market Substitutes for Songs

65. The full downstream effects from Anthropic's unlicensed copying and use of existing copyrighted works to train its AI models to compete in the creative markets for human-generated textual works (novels, scripts, and song-lyrics, to name a few) will not be fully felt until years after the initial infringements. This is because the training that occurs today is building towards a

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[52] *Copyright And Artificial Intelligence Part 3: Generative AI Training (Pre-Publication Version)* UNITED STATES COPYRIGHT OFFICE (May 2025), https://www.copyright.gov/ai/Copyright-and-Artificial-Intelligence-Part-3-Generative-AI-Training-Report-Pre-Publication-Version.pdf, at 64.

[53] *Id.* at 65.

[54] I understand that Anthropic takes the position that training on copyrighted works may constitute "fair use" under the law, which may have implications as to whether Publishers in this case have suffered legally cognizable harm. For purposes of this report, I assume *prima facie* liability for the unauthorized use of Publishers' works and offer no opinion whatsoever on applicability of Anthropic's "fair use" defense.

future where Generative AI will "become as or more intelligent than people and even human experts in every area."[55]

66. This kind of "long-horizon" harm is often seen in other economic ecosystems, where damage from an initial injury may not be felt or realized until substantial time after the fact. For example, as I discuss in a forthcoming volume of the Hatch Policy Review titled *AI at the Crossroads: Policy, Innovation, and the Public Interest*, there are parallels between an unintended harm that arises sometime after a seemingly small change in an environmental ecosystem, and a similarly unintended harm that could arise sometime after from a seemingly small change in the *creative* ecosystem.[56] Here, the unintended harm would be the use of copyrighted lyrics to create a tool capable of replacing songwriters. To borrow from Concord's designated witness, Duff Berschback, it's like an "earthquake" under the ocean, where "if you know that that has happened, you know the harm is coming." Berschback Tr. 208:18–22.

67. As a result, it is difficult to quantify the damage from Anthropic's unlicensed copying and use of Publishers' copyrighted works, at least initially. Even in its nascent form, LLM technology is already able to generate creative texts that can compete with human-generated texts in the market.

68. For example, in one recent study, academic researchers determined that many readers may already *prefer* literary outputs from Generative AI models that have been trained on copyrighted books, including Anthropic's Claude 3.5 Sonnet, as compared to comparative works

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[55] J. Kaplan Tr. 95:19–21.

[56] Michael D. Smith, *Creative Destruction or Destroying Creativity?*, HATCH POLICY REVIEW, VOL. 6: AI AT THE CROSSROADS: POLICY, INNOVATION, AND THE PUBLIC INTEREST (forthcoming).

created by human writers.[57] The study proceeded in two parts. In the first part of the experiment, the researchers used three commercial AI models—GPT4o (OpenAI), Claude 3.5 Sonnet (Anthropic), and Gemini 1.5 Pro (Google)—to generate 450-word written excerpts that emulate the style of various famous authors. The researchers then asked a group of MFA candidates to complete the same task: generating a 450-word written excerpt that emulates the style of the same famous authors. Each AI-generated emulation was then paired with a human-generated emulation, and each pair was then presented to a group of lay readers and a group of expert readers, who rated the emulated pairs for preference in the categories of "style" and "quality."

69. The researchers found that, while the expert-reader group "demonstrated strong preference for human-written text" to both stylistic fidelity and writing quality, the *lay*-reader group showed "no significant preference regarding stylistic fidelity . . . but *favored* AI-generated text for writing quality."[58] To complete the first part of the experiment, the researchers submitted the AI-written excerpts to an AI-detection test, which detected AI writing in the samples with 97% accuracy.

70. In the second part of their experiment, the researchers repeated the exercise with OpenAI's GPT4o and a subset of the same famous authors. This time, however, the AI model was specifically trained on each famous author's *entire body of works* through a process called fine-tuning. The results were striking: both expert and lay reader groups *significantly* preferred the AI

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[57] *See* Tuhin Chakrabarty, Jane C. Ginsburg, & Paramveer Dhillon, *Readers Prefer Outputs of AI Trained on Copyrighted Books over Expert Human Writers*, COLUMBIA PUBLIC LAW RESEARCH PAPER NO. 5606570 (October 15, 2025), *available at* https://papers.ssrn.com/sol3/papers.cfm?abstract_id=5606570.

[58] *Id.* at 5 (emphasis added).

emulations for style and for writing quality.[59] The Experimenters also submitted the fine-tuned emulations to Pangram, which only correctly identified 3% as AI-written.

71. Put differently, the researchers conclude that lay readers show no preference between outputs generated by even already-outdated LLMs, like Claude 3.5 Sonnet, as compared to human-written text. And once fine-tuned on specific works for the purpose of emulating a specific author, both lay and expert readers prefer the LLM-generated outputs, which the researchers conclude "can substitute" in the market, proving "almost undetectable as AI-generated text." While the researchers had the AI models emulate book authors, not songwriters, there is no reason to think the results would be different for songwriters.

72. Other studies have similarly concluded that writing jobs in particular are some of the most vulnerable to the AI revolution. For example, a 2025 paper published in the *Journal of Economic Behavior and Organization* found that, after the introduction of large language models, "demand for substitutable skills, such as writing and translation, decreased by 20–50%."[60] Another 2024 paper published in *Organization Science* found that the introduction of image-based generative-AI models caused freelance artists in highly-impacted occupations to experience "reductions in both employment and earnings."[61] The same paper found that the release of image-based generative-AI tools caused a 3.7% drop in monthly jobs and a 9.4% loss of income for designers, image, editors, and artists.

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[59] *Id.* at 12–13.

[60] Ole Teutloff *et al.*, *Winners and losers of generative AI: Early Evidence of Shifts in Freelancer Demand*, 235 J. OF ECON. BEHAVIOR & ORG. 106845 (2025), at 1.

[61] Xiang Hui, Oren Reshef, & Luofeng Zhou, *The Short-Term Effects of Generative Artificial Intelligence on Employment: Evidence from an Online Labor Market*, 35 ORGANIZATION SCIENCE 6 (2024) at 1.

73. With respect to the impact of Generative AI on the broader labor market, some researchers found that "early-career workers (ages 22-25) in the most AI-exposed occupations have experienced a 16% relative decline in employment even after controlling for firm-level shocks."[62] They conclude that their results "provide early large-scale evidence consistent with generative AI disproportionately impacting entry-level workers in the American labor market." Similarly, a recent McKinsey report determined that as much as 40% of American jobs could be replaced by artificial intelligence in coming years.[63] This early evidence and reporting further support a conclusion that AI is a significant long-term threat for participants in the creative industries.

74. Consumers' inability to distinguish between human- vs. AI-generated content is not limited to writing. Another recent study, published in September 2025, concluded that research participants could successfully discern AI-generated music from human-made music only 53% of the time.[64]

75. The effect is already playing out in the actual market as well. As one recent *New Yorker* article puts it, AI technology "has had an especially swift impact on songwriting," and the United States is now "in the midst of a full-blown A.I. music moment" as a slew of AI-created

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[62] Erik Brynjolfsson, Bharat Chandar, & Ruyu Chen, *Canaries in the Coal Mine? Six Facts about the Recent Employment Effects of Artificial Intelligence*, STANFORD DIGITAL ECONOMY LAB & STANFORD INSTITUTE FOR HUMAN-CENTERED ARTIFICIAL INTELLIGENCE working paper (Nov. 13, 2025), https://digitaleconomy.stanford.edu/wp-content/uploads/2025/11/Canariesinthe-CoalMine_Nov25.pdf at 1.

[63] *See* Diego Castresana *et al.*, *Agents, Robots, and Us: Skill Partnerships in the Age of AI*, MCKINSEY GLOBAL INSTITUTE (Nov. 25, 2025), https://www.mckinsey.com/mgi/our-research/agents-robots-and-us-skill-partnerships-in-the-age-of-ai#/.

[64] *See* Flavio Figueiredo et al., *Echoes of Humanity: Exploring the Perceived Humanness of AI Music* (39th Conference on Neural Information Processing Systems (NeurIPS 2025) Creative AI Track), https://arxiv.org/pdf/2509.25601.

songs flood the music charts and streaming platforms.[65] For example, one recently-published AI country song called "Walk My Walk" just hit Number 1 on the *Billboard* Country Digital Song sales chart and passed three million streams on the way to hitting Number 2 on Spotify's Global Viral 50 ranking.[66] The "artist" of the song is actually an "AI artist" called "Breaking Rust," which, as of this report, boasts 2.5 million monthly listeners on Spotify and has two songs (including "Walk My Walk") with over 8 million streams played.[67] Similarly, another "AI band" called "The Velvet Sundown" went viral and amassed more than one million streams on Spotify before it was revealed that the hot new band was AI-generated—"right down to their music, promotional images and backstory."[68]

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[65] Kyle Chakha, *That New Hit Song on Spotify? It Was Made by A.I.*, THE NEW YORKER (Nov. 12, 2025), https://www.newyorker.com/culture/infinite-scroll/that-new-hit-song-on-spotify-it-was-made-by-ai.

[66]Aisha Down, *AI Slop Tops Billboard and Spotify Charts as Synthetic Music Spreads*, THE GUARDIAN (Nov. 13, 2025), https://www.theguardian.com/technology/2025/nov/13/ai-music-spotify-billboard-charts; *see also* Amanda Hoover, *The AI Music Floodgates Have Been Opened*, BUSINESS INSIDER (Dec. 10, 2025), *https://www.businessinsider.com/why-the-music-industry-is-changing-its-tune-on-ai-2025-12*; Lanre Bakare, *An AI-Generated Band Got 1m Plays on Spotify. Now Music Insiders Say Listeners Should Be Warned*, THE GUARDIAN (July 14, 2025), https://www.theguardian.com/technology/2025/jul/14/an-ai-generated-band-got-1m-plays-on-spotify-now-music-insiders-say-listeners-should-be-warned.

[67]Breaking Rust, SPOTIFY, https://open.spotify.com/artist/3h9rLaviiFj1TeEhdIRpP5; *see also* Melinda Newman, *As AI Artists Breaking Rust & Cain Walker Rule a Country Chart, Nashville Execs Weigh In: 'It's Incredibly Detrimental'*, BILLBOARD (Nov. 12, 2025), https:www.billboard.com/pro/ai-artists-breaking-rust-country-music-chart-reactions/; Megan Cartwright, *Country Music Stars React to AI-Generated Country Song Being No. 1 in US*, NEWSWEEK (NOV. 18, 2025), https://www.newsweek.com/entertainment/breaking-rust-singer-ai-generated-country-song-11065963.

[68] Lanre Bakare, *An AI-Generated Band Got 1m Plays on Spotify. Now Music Insiders Say Listeners Should Be Warned*, THE GUARDIAN (July 14, 2025), https://www.theguardian.com/technology/2025/jul/14/an-ai-generated-band-got-1m-plays-on-spotify-now-music-insiders-say-listeners-should-be-warned.

76. A study commissioned by the French streaming platform, Deezer, estimates that 50,000 AI-generated songs are uploaded to the platform every day—34% of all the music submitted.[69] The same study surveyed 9,000 people in eight countries and found that 97% could not distinguish between AI-generated music and human-written music.[70] Speaking about the Deezer study, the founder of Fairly Trained, a non-profit that certifies generative AI companies' data training practices as fair to artists, said, "There's no denying it. I think it's fair to say you can't distinguish the best AI music from human-composed music now."[71]

77. When it comes to generating lyrics specifically, Anthropic's Claude is a favorite among online creators. For example, in a video from June 2025 that has so far received over 2.4 million views,[72] YouTuber Rick Beato demonstrated how anyone can create an AI-generated song from the comfort of their own home. In the video, Mr. Beato specifically uses Anthropic's Claude to generate the lyrics he uses in an AI-generated song called "West Texas Dreams," that is

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[69] *Deezer/Ipsos Survey: 97% of People Can't Tell the Difference Between Fully AI-Generated and Human Made Music – Clear Desire for Transparency and Fairness for Artists*, DEEZER NEWSROOM (Nov. 12, 2025), https://newsroom-deezer.com/2025/11/deezer-ipsos-survey-ai-music/; *see also* Kristin Robinson, *Deezer Now Says It Receives Roughly 50,000 New Fully AI-Generated Songs Daily*, BILLBOARD (Nov. 12, 2025), https://www.billboard.com/pro/deezer-ai-music-report-streamer-ai-songs-daily/.

[70] *Id.*; *see also* Jaspreet Singh, *Are You Listening to Bots? Survey Shows AI Music is Virtually Undetectable*, REUTERS (Nov. 12, 2025), *https://www.reuters.com/legal/litigation/are-you-listening-bots-survey-shows-ai-music-is-virtually-undetectable-2025-11-12/.*

[71] Aisha Down, *AI Slop Tops Billboard and Spotify Charts as Synthetic Music Spreads*, THE GUARDIAN (Nov. 13, 2025), https://www.theguardian.com/technology/2025/nov/13/ai-music-spotify-billboard-charts ; *see also* James Darley, *Spotify & OpenAI: Will Gen AI 'Hollow Out' Entertainment?*, TECHNOLOGY MAGAZINE (June 3, 2025), *https://technologymagazine.com/articles/spotify-open-ai-will-gen-ai-hollow-out-entertainment.*

[72] Rick Beato, *I'm Sorry…This New Artist Completely Sucks*, YOUTUBE (July 15, 2025), https://www.youtube.com/watch?v=eKxNGFjyRv0.

currently available on streaming services and has over 30,000 views on YouTube.[73] Notably, Mr. Beato acknowledges in his how-to video that he only "wrote a prompt" for the lyrics and that Claude "created them based on work that other people have done."

78. On this basis, it is my opinion that Generative AI technology, including the technology implemented by Anthropic's Claude models, is already capable of creating market substitutes for Publishers' copyrighted song lyrics, especially among the lay consumers who make up the vast majority of most music markets. But it is my opinion that this is only the beginning. Given the fierce market competition and astronomical investment in the industry, AI companies will continue to develop increasingly sophisticated Generative AI models, which, when trained on Publishers' copyrighted lyrics, will continue to advance in their ability to generate market substitutes for Publishers' works.

2. Anthropic's Stated Business Aim is to Create an AI Model Capable of Creating Market Substitutes for Publishers' Copyrighted Works

79. Anthropic has not been shy in predicting the future of AI. One co-founder recently declared that "[t]he world will bend around AI akin to how a black hole pulls and bends everything around itself."[74] Another co-founder compared the advent of AI to the "Industrial Revolution," J. Kaplan Tr. 85:4–15, and predicted that AI will hit "human-level intelligence" by 2030.[75] In a series of interviews, Anthropic's CEO Dario Amodei claimed that "AI is starting to get better than humans at almost all intellectual tasks," and predicted that AI could wipe out half of all entry-level

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[73] Rick Beato 2, *Eli Mercer – West Texas Dreams (Official Lyric Video)*, YOUTUBE (July 15, 2025), https://www.youtube.com/watch?v=6NSfGW53vnw.

[74] Jack Clark (@jackclarkSF), X (Oct. 13, 2025, 4:06 PM), https://x.com/jackclarkSF/status/1977828314871218378.

[75] Azeem Azhar, *Are We Ready for Human-Level AI by 2030? Anthropic's Co-Founder Answers*, YOUTUBE (Apr. 2, 2025), https://www.youtube.com/watch?v=tC_3KAyli4U&t=2s.

white-collar jobs within the next five years.[76] And Anthropic's designated witness in this case testified that, "in the next five years, it's not only possible but quite probable that we will have superintelligent AI that is capable of doing most of the kinds of work that people do, and that because of that, society and economy will be dramatically transformed in the process." B. Mann 30(b)(6) Tr. 169:16–22.

80. For this reason, Anthropic periodically publishes an "Economic Index" that purports to track "AI's effects on the economy" over time.[77] The Index tracks nearly 1,000 different occupations impacted or augmented by AI and to what degree, including "Poets, Lyricists and Creative Writers." One category of request that Anthropic claims to have received from this profession is a directive to "write narrative, dramatic, lyric, or other types of poetry."[78]

81. Anthropic's co-founders have made clear their ambition for their company: they want to create a human-level intelligence capable of doing everything a human can, which naturally includes the ability to write lyrics for songs. Anthropic President Daniela Amodei testified, "Yes. I think what I mean is Claude is capable of, for example, creating its own song lyrics, if it wanted to." Daniela Amodei Tr. 180:4–6. She has apparently even asked Claude to write a bedtime

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[76] Clare Duffy, *Why this Leading AI CEO is Warning the Tech Could Cause Mass Unemployment*, CNN (May 29, 2025), https://www.cnn.com/2025/05/29/tech/ai-anthropic-ceo-dario-amodei-unemploymenthttps://www.cnn.com/2025/05/29/tech/ai-anthropic-ceo-dario-amodei-unemployment; Jim VandeHei and Mike Allen, *Behind the Curtain: A White-Collar Bloodbath*, AXIOS (May 28, 2025), https://www.axios.com/2025/05/28/ai-jobs-white-collar-unemployment-anthropic; 60 Minutes, *Anthropic CEO Warns that without Guardrails, AI Could be on a Dangerous Path,* YOUTUBE (Nov. 16, 2025), https://www.youtube.com/watch?v=aAPpQC-3EyE; Sasha Rogelberg, *'I'm Deeply Uncomfortable': Anthropic CEO Warns that a Cadre of AI Leaders, Including Himself, Should not be in Charge of the Technology's Future*, FORTUNE (Nov. 17, 2025), https://fortune.com/2025/11/17/anthropic-ceo-dario-amodei-ai-safety-risks-regulation/.

[77] *Anthropic Economic Index,* ANTHROPIC (Sept. 15, 2025), https://www.anthropic.com/economic-index.

[78] *See id.* (Job Explorer, "Poets, Lyricists and Creative Writers").

song for her young son. *Id.* at 186:10–16. Similarly, Benjamin Mann, testifying on behalf of Anthropic, said that "creative and collaborative writing," including the ability to write song lyrics, might "be one of the use cases that people would find interesting." B. Mann 30(b)(6) Tr. 26:8–24. He has also admitted that, "[i]f you ask Claude to generate song lyrics, it's likely Claude will output something that probably looks like song lyrics . . . that look pretty good[.]" Mann 30(b)(6) Tr. 176:9–17. And Ms. Amodei testified to another instance in which an Anthropic employee sang Claude-generated lyrics to an original song in front of the entire company, further indicating that song-writing and lyric-generation is an intended use case, at least among Anthropic employees. *See* Daniela Amodei Tr. 202:6 – 204:23. The Expert Report of Josh Dennis (Dec. 19, 2025) (the "Dennis Report") also includes analysis of records Anthropic produced reflecting the various ways in which Anthropic's own employees have used Claude, which include dozens of requests and prompts relating to song lyrics, further anecdotally supporting that Anthropic intends for Claude to be able to generate song lyrics. *See* Dennis Report § VII.E.

82. As recently as January 2025, Jared Kaplan, Anthropic's Chief Science Officer and the person responsible for steering Claude's technical development, specifically prompted Claude (in his personal use) to "write a cynical dark but hilarious rock song with the word weep." Anthropic_0000570586; *see also* J. Kaplan Tr. 306:14–25 (confirming prompt for lyrics). Dr. Kaplan further testified to his great "interest[]" in Claude's ability to write poems, which he admits are "most similar" to song lyrics, J. Kaplan Tr. 154:24–25, and he even included multiple LLM-generated poems in an early paper from his time at OpenAI, an Anthropic competitor, *see id.* at 294:25 – 295:6 (referring to Tom Brown *et al.*, *Language Models are Few-Shot Learners*, ADVANCES IN NEURAL INFORMATION PROCESSING SYSTEMS 33 (July 22, 2020), at p. 49, available at https://arxiv.org/pdf/2005.14165).

83. And Claude itself has touted its own capability and use to generate song lyrics. In response to a March 2024 prompt entered by an Anthropic employee, "what is something cool you can do?," Claude responded, "There are many interesting things I can do! For example, I can engage in creative writing tasks like: . . . Writing song lyrics or parody lyrics to existing songs." Anthropic_0000434319.

84. The fact that Anthropic has repeatedly expressed a goal of creating a "human-like intelligence" to serve its customers within the next five years, which includes the human ability to generate song lyrics, further confirms my opinion that Generative AI models trained on Publishers' copyrighted lyrics—like Claude—will continue to increasingly generate market substitutes for Publishers' lyrics, thereby threatening the market for Publishers' lyrics and harming Publishers and songwriters in the process.

3. Anthropic's Claude Creates Potential Market Substitutes to Publishers' Copyrighted Lyrics

85. Anthropic's ability to create market substitutes for Publishers' Copyrighted works is not just theoretical. Evidence I have reviewed shows that lyric-generation and lyric-modification are already substantial use-cases for Claude users and customers. This evidence further supports my opinion that Generative AI models trained on Publishers' copyrighted lyrics will continue to increasingly generate market substitutes for Publishers' lyrics, thereby threatening the market for Publishers' lyrics and harming Publishers and songwriters in the process.

86. I understand that Anthropic produced 5 million sample records of user outputs in this case from the six months preceding guardrails and post-dating guardrails. *See* ECF No. 377. I also understand that the parties have agreed, and the Court has ordered, that this 5-million sample is to be treated as statistically representative of the approximately 455 million total user outputs generated by Claude across the relevant period of the case. *Id.*; *see also* Dennis Report ¶ 59.

87. I have relied on the expert analysis contained in the Dennis Report, which categorized a series of Claude-user prompts, including at least two prompt categories reflecting requests for potential market substitutes of Publishers' works and lyrics. *See* Dennis Report § VII.D.

88. For the first prompt category, Mr. Dennis identified at least 922 Anthropic-user prompts asking Claude to generate "new song lyrics based upon provided artist(s), song title(s) or lyrics." Dennis Report ¶ 182. When this figure is extrapolated to account for the full universe of approximately 455 million Claude-user prompts at issue between September 22, 2023, and March 22, 2024, Mr. Dennis determined that there would be approximately 80,670 similar requests for Claude to generate "new song lyrics based upon provided artist(s), song title(s) or lyrics." *id.* at ¶ 215.

89. Mr. Dennis also highlighted certain "Exemplary Sample Record excerpts" that he included in this prompt category, such as:

- ANTH_SAMPLE000006711 (October 6, 2023)

> Human: great! keepign the same structure, meter, and rhyming scheme of what I pasted in, repeat this in the thematic style of tom waits.
>
> Assistant: Here's a Tom Waits-style version following the same structure, meter, and rhyming scheme:
>
> That was nineteen seventy-nine, the music turned slime, as disco died and took the funk with it
> Factory dancers, robotic romancers - no heart on the floor, just chasing the score
> They sterilized the beat, and brought jukeboxes to their knees
> Made boogie just a bore

- ANTH_SAMPLE000063982 (October 2, 2023)

Human: Write song lyrics similar to Nate Smith's "Love is Blind"

It'd be so much easier to let me go Let me keep on wandering down my lonely road Why you don't, only heaven knows Be so much easier to let me go

Be so much easier to say goodbye No more waiting up whiskey nights Yeah, I'd've left 'bout a million times It'd be so much easier to say goodbye

I ain't that patient, I ain't that kind A little bit crazy, most of my life Girl, you saved me, I don't know why But I thank God that your love is blind

Assistant: Here is a draft of song lyrics inspired by "Love is Blind" by Nate Smith:

Keeping me around, I don't deserve
This devotion you always serve
I'm flawed and I'm rough, I admit
But your love still remains committed

I make mistakes time after time
Cross lines that I shouldn't cross
But you forgive, don't keep score
As if my flaws you don't see at all

90. For the second prompt category, Mr. Dennis identified at least 1,675 Anthropic-user prompts asking Claude for "new song lyrics based upon provided topic(s)." *See* Dennis Report ¶ 186. When this figure is extrapolated to account for the full universe of approximately 455 million Claude-user prompts at issue between September 22, 2023, and March 22, 2024, Mr. Dennis determined that there would be approximately 148,761 similar requests for Claude to generate "new song lyrics based upon provided topic(s)." *See id.* at ¶ 215.

91. Once again, Mr. Dennis highlighted certain "Exemplary Sample Record excerpts" that he included in this prompt category, such as:

- ANTH_SAMPLE000056158 (March 18, 2024)

Human: I want to write a song based on an idea i have. In this song I want to acknowledge that my wife is laid back and cool and not uptight. She is OK with cancelling plans and just making love for the night. She enjoys my home cooked meals instead of going out for dinner

Assistant: I can definitely help you come up with ideas and provide suggestions for writing your own original song lyrics, without reproducing any copyrighted material. Here are some thoughts based on the concept you described:

You could open with a verse celebrating your wife's laid-back, easygoing nature, maybe something like:

"My baby's so chill, she goes with the flow
When plans get canceled, she says 'let's take it slow'"

Then the chorus could highlight how she prefers cozy nights in over going out, making love instead of fancy dinners. Perhaps:

"She'd rather stay in than paint the town
Trading high heels for my old t-shirt hanging around

- ANTH_SAMPLE000092604 at 605 (October 9, 2023)

> Human: Write me a fire, mom song three sentences
>
> Assistant: Here is a 3 sentence fire mom song I came up with:
>
> Oh fiery mother, your flames reach so high,
> You nourish your children with sparks in the sky.
> We bask in your warmth as your embers draw nigh.
>
> I tried to capture a song paying tribute to a metaphorical fiery mom, with lyrics about her flaming energy providing warmth and comfort to her children. Please let me know if you would like me to modify or expand this any further! I'm happy to keep reworking it until it better fits what you were envisioning.

92. Claude-generated lyrics, like those identified by Mr. Dennis, can and do harm the market for Publishers' existing copyrighted lyrics in multiple ways. For example, with respect to revenue generated from Digital Services Providers ("DSPs") like Spotify and Apple Music, songs that use AI-generated lyrics reduce the total share of streaming revenue to which Publishers would otherwise be entitled. This is a function of how DSPs structure their revenue distribution.

93. For [redacted] [79] For example, [redacted] *See* UMPG_0000023257, at -70-71 (emphasis added). In another 2017 agreement with UMPG, [redacted] Similarly, [redacted]

[79] *See* Berschback Tr. 208:1–14 (explaining that [redacted]

[redacted][80]

94. AI-generated works potentially dilute the revenue available to human generated songs by affecting both the numerator and denominator of this calculation. By diverting streams from Publishers' works, AI-generated works reduce the total number of streams of Publishers' works. And by increasing the total number of works generating streams, AI-generated works reduce Publishers' works' share of the total number of streams.[81] In other words, absent a significant increase in the size of the royalty pool that is caused by Generative AI, because there are more songs in the royalty pool, there are not only fewer royalties to go around, but also more songs competing for consumers' attention. The U.S. Copyright Office has similarly noted that "Royalty pools can also be diluted" as a result of training Generative AI on copyrighted works.[82]

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[80] *See, e.g.,* ABKCO_0000000025 at -36–39 (Apple [redacted]); CONCORD_0000000260 at -269 (Apple agreement [redacted]); ABKCO_0000000369 at -371 (Google agreement [redacted]); ABKCO_0000000398–400 (Google extension [redacted]); ABKCO_0000001313, at -1317 (Snap agreement [redacted] CCMG_0000000662, at -675–680 (Google agreement [redacted] CCMG_0000000259, at -60–61 (Google extension [redacted] CONCORD_0000000146, at -160–163 (Google agreement [redacted]); CONCORD_0000000220, at -224 (Snap agreement [redacted]); UMPG_0000023125, at -28 (Pandora agreement [redacted]); UMPG_0000023040, at -40 (Snap agreement [redacted]).

[81] *See* Berschback Tr. 208:1–14 (explaining that, when "you put a bunch of AI-generated works" into that same royalty pool, it "dilutes the royalty pool"); Coleman Tr. 172:10–14 ("As more compositions, songs, recordings flood the marketplace, that it will reduce the pool of revenue to talent versus skill and will directly impact existing and future songwriters and artists.").

[82] *Copyright And Artificial Intelligence Part 3: Generative AI Training (Pre-Publication Version)* UNITED STATES COPYRIGHT OFFICE (May 2025), https://www.copyright.gov/ai/Copyright-and-Artificial-Intelligence-Part-3-Generative-AI-Training-Report-Pre-Publication-Version.pdf, at p. 65.

95. While the flood of songs containing AI-generated lyrics uploaded to streaming platforms represents potential direct financial harm to Publishers, it is at this point nearly impossible to precisely quantify that financial harm, for a number of reasons. To do so, I would need to know the number of songs containing AI-generated lyrics[83] and their respective streaming figures, the amount paid out by relevant streaming platforms for those songs as a percentage of the total revenue-distribution pool, and some exogenous shock to determine which consumers switched their listening preferences from Publishers' songs to AI-generated songs while also accounting for any change in the consumer base as a result of the influx of AI-generated music to the relevant streaming platforms. Indeed, lack of clear and reliable market information and exogenous shocks is part of why it took many years for academics to settle on a consensus that digital piracy harmed the music industry.

96. I understand that Anthropic has added so-called "guardrails" that are intended to limit the generation of outputs containing Publishers' (and other rightsholders') lyrics and works. *See* Zhao Report ¶¶ 117–132. While such tools might prevent regurgitation (at least in theory), they will not have any effect in stopping the foregoing market dilution if Anthropic continues to use copyrighted works to train its models and those models are enabled to create market substitutes in the form of "original" lyrics. *Id.* ¶¶ 10, 147.

97. Given Anthropic's own admissions and aspirations regarding the pace of development, it is likely that, within only a few years, if not the case already, Claude users will be able to use Claude to directly compete with Publishers and the songwriters they represent. Over a long-enough time horizon, these market substitutes will also have the effect of "crowding out" emerging

[83] This information, in particular, would be practically impossible to obtain because only the uploader would be able to confirm or deny whether a given song contained AI-generated lyrics.

artists whose works would otherwise be appreciated by music publishers, consumers, and even AI companies that would want to train on their works. The downstream effects are likely to only expand from there: entry-level jobs for songwriters and music producers dry up, fewer people will learn the craft and go onto become artists/etc. In other words, Anthropic's use of copyrighted works to train its Claude AI models *today* has a very real potential to irreparably and significantly harm, if not destroy, the market for Publishers' works in the future.

98. The damages flowing from Anthropic's conduct are therefore impossible to quantify with reasonable certainty. That said, a useful benchmark for understanding the magnitude of harm here would be to look at the revenue earned by the Works-in-Suit in this matter. For example, I understand Publishers produced financial records showing the total revenue (mechanical, performance, print, and sync) earned for all 499 Works-in-Suit between Q1 2019 and Q3 2025, which equaled approximately [redacted][84] Assuming these revenues remain constant going forward, a 10% reduction in the revenues for these 499 works alone would equate to a loss of approximately [redacted] over the next seven years. Similarly, a 50% reduction in these revenues would equate to an approximate loss [redacted] over the same timeframe. One could extrapolate to the scale of harm that would result if Publishers' entire catalog suffered the same market dilution and substitution harms described above.

[84] *See* UMPG_0000025145 (reflecting total revenue of [redacted] for UMPG); ABKCO_0000001512 (reflecting total revenue of [redacted] for ABKCO over same period); CONCORD_0000016756 (reflecting total revenue of [redacted] for Concord over same period); CCMG_0000001277 (reflecting total revenue of [redacted] for CCMG over same period).

B. The Economic Impact of Anthropic's Unlicensed Copying and Use of Publishers' Copyrighted Lyrics as AI Training Data

99. By copying Publishers' compositions as training material and delivering copies of Publishers' work for free and on demand, Anthropic provides the same service to its users as many of Publishers' licensees but without any restrictions on use. This conduct harms Publishers economically in several ways.

1. Anthropic's Unlicensed[85] Copying and Use of Publishers' Copyrighted Lyrics as AI Training Data Prejudicially Impacts Publishers' Ability to License Those Lyrics to Other AI Companies

100. By copying and using Publishers' lyrics to train its AI models without paying a license fee, Anthropic deprives Publishers of significant licensing fees Publishers otherwise would have received but for Anthropic's failure to license Publishers' lyrics for use as training data and otherwise damages Publishers' ability to license those lyrics as training data to other AI companies. It is my opinion that, while nascent, a robust market exists for licensing Publishers' copyrighted works as AI training data and that Anthropic's conduct subverts and undermines that market.

a. Preconditions for an Effective AI Licensing Market to Exist

101. As described in the U.S. Copyright Office's report on *Identifying the Economic Implications of Artificial Intelligence for Copyright Policy*[86] in which I participated, many economic scholars in my field agree that at least three preconditions are necessary for an effective AI licensing market to arise: (1) rightsholders must have the practical ability to restrict access to their

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[85] By "Unlicensed," I simply mean without Publishers' express permission, which I assume was not granted for purposes of this Report. I am not offering any opinion as to whether Anthropic was legally required to obtain a license in order to collect and use Publishers' copyrighted lyrics.

[86] Brent A. Lutes, ed., *Identifying the Economic Implications of Artificial Intelligence for Copyright Policy*, UNITED STATES COPYRIGHT OFFICE (Feb, 2025), https://www.copyright.gov/economic-research/economic-implications-of-ai/, at 35–38.

content; (2) licensees and licensors must both be willing to enter a deal; and (3) transaction costs must not be prohibitively high. In this case, each precondition has been sufficiently met, and a market for the effective licensing of Publishers' copyrighted works exists.

102. ***Precondition 1*:** A preliminary (if obvious) condition for effective licensing to occur is that rightsholders must be able to practically restrict access to their work. Otherwise, potential licensees would not need to seek a license in order to use the work; they can simply obtain it for free. A natural way to do this is to put content behind a technological barrier such as a paywall. However, because that may create other costs rightsholders wish to avoid (such as reducing the potential audience's access) as well as be a socially undesirable outcome, it is useful to consider whether there are other ways of restricting access to generative AI models without diminishing public access for human consumers.

103. Rightsholders have begun experimenting with alternative technological solutions. For example, some websites have implemented "robots.txt" protocols, "which are industry-standard mechanisms to prevent scraping and use of data" that appears on public webpages. B. Mann 30(b)(6) 30:12–18. I understand that Anthropic maintains an internal policy "around employees not trying to circumvent access restrictions" such as "robots.txt" protocols, *see* B. Mann 30(b)(6) Tr. 30:12–18, but, as Anthropic's Mr. Mann implies, these protocols can be circumvented if desired. Moreover, robots.txt protocols cannot restrict access to a rightsholder's content if that content appears on uncontrolled or unauthorized webpages or in third-party datasets like Common Crawl or The Pile. Once a rightsholder's content has been added to one of these publicly available third-party datasets, it is difficult if not impossible to remove it. Further, versions of these third-party datasets were created long before the use of these datasets to train Generative AI models was

widely known or even envisioned; Common Crawl, for example, dates back to at least 2013.[87] A rightsholder now seeking to prevent the use of its copyrighted content for AI training cannot retroactively restrict scraping that occurred a decade ago.

104. Consequently, I do not believe there is any practical way for Publishers to fully restrict access to their works that cannot be easily circumvented. One other limitation of technological solutions like robots.txt protocols is that they must be continuously improved upon to stay ahead of counter technologies aimed at circumventing access limits. It may be a perpetual arms race between developers and rightsholders, which itself will impose a social cost.

105. Legal restrictions on a model's access to training data can, in principle, have the necessary effect if enforced. To be effective, legal rights must be both clearly defined to exclude unpermitted ingestion and must be enforceable from a practical perspective. For enforcement to be practically effective, infringement needs to be detectable and come with a sufficiently large consequence to deter unlicensed use. However, detectability may be a limiting factor, at least under the current regime, as many developers are unwilling to reveal what goes into their models. Indeed, Anthropic's designated representative, Tom Turvey, testified that Anthropic [redacted] *See* Turvey 30(b)(1) Tr. 70:17–22. Thus, for legal restrictions to be a viable, long-term solution, some amount of transparency around training data would need to be mandated.

106. In this case, the obvious (if imperfect) means for Publishers to restrict access to their content for use as training data is enforcement through the legal system. Absent this ability to enforce a legal restriction on the unauthorized use of their lyrics as AI training data, any

[87] *Common Crawl*, WIKIPEDIA, https://en.wikipedia.org/wiki/Common_Crawl (last visited Dec. 18, 2025) (referring to the use of Common Crawl in 2013).

licensing market for those lyrics will likely collapse, Publishers will lose a significant revenue stream, and their works will suffer a corresponding reduction in value. Indeed, Anthropic's Mr. Turvey stated in an internal policy document that the company [redacted] *Id.* at -52–53; *see also* Turvey 30(b)(6) Tr. 43:2 – 44:18.

107. ***Precondition 2*:** For transactions to occur within a licensing market, the bargaining set must not be empty—that is, the licensee's maximum willingness to pay must be equal to or greater than the licensor's minimum willingness to accept. In other words, the licensee's value of gaining the rights to the licensed works must be greater than the rightsholders' value of retaining the rights to those works.

108. As I discuss above, a robust AI licensing market for copyrighted works generally—and music lyrics specifically—already exists. As discussed below, publishers in this case have licensed their works for use as AI training data to at least two companies, while the list of third-party entities that have announced public AI licensing deals for copyrighted content grows larger nearly every day.[88]

109. Notably, just a few days ago, Disney and Anthropic competitor OpenAI announced a deal, reportedly worth $1 billion, that will see a stable of iconic characters from Disney's copyrighted content, including Mickey Mouse, Luke Skywalker, and Iron Man, appear in OpenAI-

[88] *See above* § IV.C; *see also AI Licensing by Copyright Owners*, COPYRIGHT ALLIANCE, https://copyrightalliance.org/artificial-intelligence-copyright/licensing/copyright-owners/ (last visited Dec. 19, 2025).

generated social videos.[89] Precise details of the deal are not publicly available, so it is unclear exactly how and to what extent Disney's content has been licensed, including, for example, whether the deal pertains to AI training. Nevertheless, a public statement from Robert Iger, Disney's long-time CEO, illustrates how global media companies view "[t]he rapid advancement of artificial intelligence" as a watershed moment for the entertainment industry, while OpenAI also affirmed in a statement its commitment to the responsible use of AI in a way that "respect[s] the rights of content owners in relation to the outputs of models."[90]

110. This nascent AI-licensing market parallels numerous examples in modern history of technological developments in which emerging technology companies overcame their initial reluctance and found a way to offer licensing terms that legacy media rightsholders could accept. These include:

- Peer-to-peer music sharing (P2P) (*e.g.*, Napster);
- Internet radio (*e.g.*, Pandora);
- Social media platforms (*e.g.*, YouTube, TikTok)
- Streaming media (*e.g.*, Spotify, Deezer); and
- The "metaverse."

111. Notably, in each instance, emerging technology companies took the position that paying for licenses would bankrupt them and many went ahead exploiting copyrighted music without a license. In some cases, individual companies were unable to stay in business because their

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[89] Brooks Barnes and Cade Metz, *Disney Agrees to Bring Its Characters to OpenAI's Sora Videos*, N.Y. TIMES (Dec. 11, 2025), https://www.nytimes.com/2025/12/11/business/media/disney-openai-sora-deal.html.

[90] *The Walt Disney Company and OpenAI reach landmark agreement to bring beloved characters from across Disney's brands to Sora,* OPENAI (Dec. 11, 2025), https://openai.com/index/disney-sora-agreement/.

particular business model was not sustainable. But in every instance, the technology itself survived after finding a way to license from legacy media, with some platforms learning to operate legitimate businesses while paying for content, and in other instances with the market finding different technologies that accomplished the same thing. Examples include:

- P2P: In general, none of the more notorious P2P companies such as Napster, Grokster, and Limewire continued to operate as P2P companies after being sued for copyright infringement. However, Napster re-emerged as a music streaming company before being acquired by a metaverse platform March 2025,[91] and Mega (a company related to Megaupload founded by Kim Dotcom) now removes infringing files within hours of a request.[92]
- Internet radio: Internet radio (webcasting) services of all sizes complained that they could not afford licenses. In 2007, the Copyright Royalty Board ruled that they would have to pay certain statutory rates, and many threatened to go out of business.[93] But in 2009, SoundExchange and the webcasters came together to negotiate rates that have allowed the webcasters to thrive.[94]

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[91] *Napster (streaming service)*, WIKIPEDIA, https://en.wikipedia.org/wiki/Napster_(streaming_service) (last visited Dec. 19, 2025).

[92] Andy Maxwell, *Mega: 144,000+ Users Have Been Terminated for Repeat Copyright Infringement*, TORRENTFREAK (Oct. 21, 2021), https://torrentfreak.com/mega-144000-users-have-been-terminated-for-repeat-copyright-infringement-211021/.

[93] *See generally Statutory Royalty Rates for Digital Performance of Sound Recordings: Decision of the Copyright Royalty Board* (RL34020), CONGRESSIONAL RESEARCH SERVICE (Jan. 28, 2010), https://www.everycrsreport.com/files/20100128_RL34020_c0c377bba314153ec49eb0a813647dc1f3a4544b.pdf.

[94] *See* John Timmer, *Pandora Lives! SoundExchange Cuts Deal on Webcasting Rates*, ARSTECHNICA (July 7, 2009), https://arstechnica.com/tech-policy/2009/07/soundexchange-cuts-deal-on-music-webcasting-rates/; David Oxenford, *Pureplay Webcasters and SoundExchange*

- Social media platforms: When YouTube first launched, it was sued by Viacom for copyright infringement. The parties tried to negotiate a license but the deal fell through.[95] Eventually YouTube was purchased by Google and implemented a ContentID system and agreed to compensate creators for content. In 2017, Facebook signed a deal with Universal Music Group to license content and began to respond to takedown notices.[96]
- Streaming media: Most streaming services started out with content licenses, but they paid low rates, complaining that they could not pay more. Over time they began to pay higher rates. For example, Apple Music agreed to pay artists for streams even during its free trial period.[97] Spotify has been the subject of complaints from artists for years that it paid below market rates. One of Spotify's executives said that the platform was designed to distribute music, not to pay artists.[98] After considerable pushback, Spotify announced it would increase its payments to artists and rightsholders.[99] Blogmusik.net,

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Enter into Deal Under Webcaster Settlement Act to Offer Internet Radio Royalty Rate Alternative for 2006-2015, BROADCAST LAW BLOG (July 7, 2009), https://www.broadcastlaw-blog.com/2009/07/articles/pureplay-webcasters-and-soundexchange-enter-into-deal-under-webcaster-settlement-act-to-offer-internet-radio-royalty-rate-alternative-for-2006-2015/.

[95] Opening Brief for Plaintiff-Appellants at 15–17. *Viacom Int'l, Inc., et al. v. YouTube, Inc., et al.*, No. 10–3270 (2d Cir. Dec. 7, 2010), ECF No. 63.

[96] Kerry Flynn, *Facebook Signs First-Ever Music Deal with a Record Label*, MASHABLE (Dec. 21, 2017), https://mashable.com/article/facebook-music-rights-record-label-universal-music-group.

[97] Tim Fernholz and Heather Timmons, *Taylor Swift Has Successfully Shamed Apple Music into Paying Artists All the Time*, QUARTZ (June 21, 2015), https://qz.com/433499/taylor-swift-wont-put-1989-on-apples-streaming-music-app-until-she-gets-paid.

[98] Paul Resnikoff, *Spotify Executive Calls Artist 'Entitled' for Requesting Payment of One Penny Per Stream*, DIGITAL MUSIC NEWS (June 29, 2021), https://www.digitalmusicnews.com/2021/06/29/spotify-executive-entitled-pay-penny-per-stream/.

[99] Tim Ingham, *Spotify Is Changing Its Royalty Model to Crush Streaming Fraud and Introduce a Minimum Payment Threshold. Its Plan? To Shift $1 Billion in Payouts Towards 'Working Artists' Over the Next 5 Years*, MUSIC BUSINESS WORLDWIDE (Oct. 24, 2023), https://www.musicbusinessworldwide.com/spotify-is-changing-its-royalty-model-to-crush-streaming-fraud/.

the predecessor to Deezer, a French streaming music service, launched without content licenses and then quickly shuttered. While the company reformed, Deezer struggled for several years, complaining that it could not afford market-based license fees.[100] Today Deezer is financially healthy and has increased the amounts it pays rightsholders.[101]

112. And as I discussed in my testimony to the United States Senate, *Too Big to Prosecute?: Examining the AI Industry's Mass Ingestion of Copyrighted Works for AI Training*,[102] it is worth considering the possible new technologies and markets that can emerge when courts enforce licensing rights. For example, consider a world in which the Napster and Grokster cases came out the other way—"a world where sharing pirated content was 'fair use' and was allowed to exist legally." In that world, "there's a strong argument that licensed markets for creative content like Spotify and Netflix wouldn't exist today—to the detriment of consumers, creators, and technology investors."[103]

113. Based on this history as well as the existence of a robust licensing market for copyrighted works, generally, and music lyrics, specifically, it is my opinion that the bargaining set for a licensing market for use of Publishers' works as AI training data is not empty—that there is

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[100] Pascal Rozat, *Deezer: Profitability Down the Line?*, INA GLOBAL (Aug. 18, 2011), https://web.archive.org/web/20150403164334/http://www.inaglobal.fr/en/music/article/deezer-profitability-down-line?tq=4.

[101] Umar Shakir, *Universal Music Group Lands New Royalty Model That Boosts Popular Artists*, THE VERGE (Sept. 6, 2023), https://www.theverge.com/2023/9/6/23861232/universal-music-deezer-streaming-deal.

[102] Written Testimony of Dr. Michael D. Smith, *Too Big to Prosecute?: Examining the AI Industry's Mass Ingestion of Copyrighted Works for AI Training*, SEN. COMMITTEE ON THE JUDICIARY (July 16, 2025), https://www.judiciary.senate.gov/imo/media/doc/64bc45b6-9e04-22e4-34c1-12d0efad69ef/2025-07-16%20-%20Testimony%20-%20Smith.pdf.

[103] *Id.* at 5.

likely an amount AI companies could afford and would be willing to pay to license Publishers' works for use as AI training data that Publishers would be willing to accept.

114. ***Precondition 3***: Transaction costs must be sufficiently low for a licensing market to arise. Transactions costs are expenses incurred in order to trade or sell goods or services, apart from the value of the goods or services themselves. Transaction costs can include search costs (such as the costs of finding a counterparty), information costs (such as the costs of collecting sufficient information to properly value the good/services being exchanged), bargaining costs (the costs of negotiating the price and terms of the deal), and the costs of ensuring compliance with the terms of the deal. Transaction costs include not just actual monetary expenditures but also the investment of time and effort.

115. If the transaction costs associated with seeking out and negotiating with individual rightsholders are higher than the value of the content to the licensor, individual licensing is less likely to occur, even if a transaction (absent transaction costs) would be mutually beneficial.

116. Transaction costs can outweigh the value of a training data license in some cases. For example, Anthropic witnesses have contended that the value of any one of Publishers' works to their Claude models is "of almost no value because scale [is] all that matter[s]. And therefore, any given individual piece of data [is] essentially worthless."[104] *See, e.g.*, J. Kaplan Tr. 209:18–21. As such, even trivial transaction costs could outweigh the value derived from a licensing deal if such a deal were negotiated on a work-by-work basis.

117. But transaction costs are unlikely to outweigh the value derived from a licensing deal in cases where the licensor is an entity that controls a high concentration of rights, like

[104] I have no opinion one way or the other as to the relative value of one of Publishers' works to Anthropic for any purpose.

Publishers here, who control rights to hundreds of thousands, or more, of individual works. Under such circumstances, bargaining can take place on a catalog-wide basis based on the licensing value of the catalog as a whole, rather than based on the license value of individual works. By consequence, the transaction cost on a per-work basis should be low enough to facilitate a licensing deal.

118. That said, while centralized ownership of rights can facilitate more efficient markets, it is not a strict requirement. The effects of centralized ownership can be mimicked by collective intermediation. For example, collective rights organizations often help reduce transaction costs around large-scale licensing in certain industries, including music, such as the American Society of Composers (ASCAP), Authors and Publishers, Broadcast Music, Inc. (BMI), and the Society of Authors, Composers and Publishers of Music (SACEM). Many of these organizations offer blanket licenses and have well-established methods for distributing royalties among their members. Nonetheless, Generative AI models ingest an enormous and diverse body of works, and collective intermediation may be better suited for some subsets of those works than it is for others.

119. Regardless, given the size of Publishers' catalogs, it is reasonable that any transaction costs associated with negotiating collective licensing rights to those catalogs for use in AI training are not prohibitively high to restrict emergence of a licensing market. Accordingly, it is my economic opinion that the preconditions for an effective licensing market for AI training data comprised of copyrighted music lyrics already exist.

b. Publishers' Are Active Participants in the Licensing Market for Their Works as AI Training Data

120. Because AI technology itself is still so new, the licensing market for copyrighted works as AI training data is also still developing. Nevertheless, Publishers in this case are early entrants to this emerging licensing market. It is my understanding that Plaintiff UMPG has already

struck agreements to license their music lyrics on a catalog-wide basis to two AI companies: Uncharted Labs, Inc. (d/b/a Udio.com, "Udio") and Klay Vision, Inc. ("Klay").

121. UMPG's agreement with Udio (the "Udio Agreement") serves as a useful benchmark for understanding the rights, restrictions, and compensation negotiated between two active participants in the licensing market for music compositions (including music lyrics) as AI training data. *See* UMPG_0000024457.

122. [redacted]

123. [redacted]

[105] *See also* Kokakis Tr. 206:19–24 ([redacted]

[redacted]

124. [redacted]

125. [redacted]

126. [redacted]

[redacted]

127. [redacted]

[redacted].[106]

128. [redacted]

[redacted]

[106] *See* Kokakis Tr. 201:6–11 ([redacted]

129. [redacted]

130. [redacted]

131. [redacted]

132. [redacted]

133. UMPG's agreement with Klay (the "Klay Agreement") serves as another useful reference point for understanding the relevant rights, restrictions, and compensation negotiated in this emerging market. *See* UMPG_0000025119.

134. [redacted]

[redacted]

135. [redacted]

136. Accordingly, it is my opinion that Publishers are active and receptive participants in the licensing market for AI training data and related AI-use purposes. It is also my opinion that the Udio and Klay Agreements serve as useful reference points for understanding the specific rights, restrictions, and revenue-sharing structures that rightsholders, like UMPG, will expect to negotiate in future Generative AI licensing agreements.

c. Anthropic's Unlicensed Scraping of Publishers' Copyrighted Lyrics Subverts and Undermines the Licensing Market for AI Training Data

137. It is my opinion that Anthropic subverts the licensing market for AI training data by undermining the market preconditions that I described above, *see* § V.B.1.a, particularly with respect to rightsholders' ability (including Publishers) to restrict access to their copyrighted works.

138. Anthropic primarily subverts the licensing market for training data through its corporate strategy of obtaining AI training data by "crawling" and "scraping" the Internet for copyrighted text,[107] which does not require any contact with or compensation to the rightsholders of the copyrighted works that Anthropic obtains in this manner. *See* Turvey 30(b)(6) Tr. 37:6–13 (testifying that "the majority of the content" that Anthropic obtains to train its AI models comes from crawling the web, while the remainder is "augment[ed]" through content acquisition deals).

139. By "crawling," I mean the general and routine act of accessing individual websites, web pages, and URLs on the internet. *See* B. Mann 30(b)(6) Tr. 47:13–15 ("I would say crawling is just this act of going from page to page, and it doesn't necessarily involve scraping."); *see also* Sangani Tr. 115:16–116:3. This practice typically uses an automated software tool called a "web crawler." *See* Sangani Tr. 163:14 – 167:1 (describing Anthropic's bespoke web crawlers named "Ant Spider" and "Crabby"). The term "scraping" is slightly different and is described colloquially by Anthropic as "making a copy of the contents that are downloaded when visiting a web page." B. Mann 30(b)(6) Tr. 47:8–10; *see also* Sangani Tr. 116:7–15. For purposes of this report, I generally refer to each term interchangeably to mean the practice of accessing public webpages and copying all available data.

140. A significant feature of Anthropic's scraping practice (and its content-acquisition strategy, more broadly) is its reliance on third-party datasets, like Common Crawl and The Pile, which themselves are collections of scraped and other data that have been compiled for public download, and which include vast amounts of copyrighted materials. B. Mann 30(b)(6) Tr. 53:20–

[107] To be clear, Anthropic collects training data in a wide variety of ways, including by downloading or acquiring third-party datasets and through a practice it refers to as "destructively scanning" printed books. *See* Turvey 30(b)(6) Tr. 95:16–20 (describing process). The unlicensed scraping conduct that I refer to in this section is not meant to be a comprehensive or exclusive analysis of Anthropic's content-acquisition practices.

25 (describing Common Crawl); B. Mann 30(b)(1) Tr. 42:1–7. Tangential to its scraping and crawling practices, I also understand from public court orders that Anthropic has been found to rely on pirated materials[108] that it has obtained through "the infamous BitTorrent protocol," including the datasets referred to as "Pirate Mirror Library" (or "PiLiMi") and Library Genesis (or "LibGen"). *See Bartz v. Anthropic PBC*, 791 F. Supp. 3d 1038, 1046 (N.D. Cal. 2025).

141. I offer no opinion as to the legality of scraping practices, or any other of Anthropic's content-acquisition strategies and practices, but it is my opinion that Anthropic's unlicensed scraping of Publishers' copyrighted works subverts the nascent licensing market for AI training data, generally, and the licensing market for Publishers' song lyrics as AI training data, specifically.

i. Anthropic's Unlicensed Scraping Subverts Rightsholders' Practical Ability to Restrict Access to Copyrighted Material

142. Anthropic's unlicensed scraping of copyrighted works from the Internet (including Publishers' lyrics) subverts the first licensing-market precondition—a rightsholder's ability to restrict access to copyrighted material.

143. First, as I discussed above, to the extent copyrighted content appears online, there is presently no practical way for a rightsholder to completely prevent an entity like Anthropic from crawling or scraping that content to then use it as AI training data.[109] This is true even if rightsholders could take steps to restrict scraping prospectively (for example, by using robots.txt

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[108] I assume these materials were "pirated" based on Judge Alsup's description of these datasets in his July 17, 2025 order in the *Bartz* litigation. *See Bartz v. Anthropic PBC*, 791 F. Supp. 3d 1038, 1046–47 (N.D. Cal. 2025). To the extent that term carries any legal implications, I have no opinion.

[109] The fact that Anthropic purportedly instructs its employees to respect "robots.txt" protocols does not change my opinion. As noted above, technological protocols are imperfect and circumventable. Moreover, that rightsholders would need to rely on a company like Anthropic to respect robots.txt protocols as a matter of policy further illustrates that the *rightsholder* lacks practical ability to restrict access to their content.

instructions), because third-parties datasets like Common Crawl and The Pile have already crawled, scraped, and collected countless copyrighted works that are available to AI companies like Anthropic to freely download. In the pre-AI world, rightsholders would not have had any reason to implement anti-scraping measures to restrict use of their content for AI training, so to the extent protected works appear in similar third-party datasets, there really is no practical means of restricting access.

144. Rightsholders with works displayed online are therefore heavily reliant on the legal enforcement of copyright law to satisfy the first precondition for an AI licensing market. Copyright law allows rightsholders to generate value from their created works via public display and distribution without fear that the value of their works will be stolen or diminished because the rightsholder has the opportunity to recover at least some of that value in a court of law, if needed. But when copyright protection is ignored or nullified, any effective licensing market for those copyrighted works is subverted and may even collapse.

145. Consequently, if Anthropic's unlicensed scraping of copyrighted works from the Internet for use as AI training data is deemed a legal "fair use" under copyright law, as Anthropic contends,[110] rightsholders (including Publishers) would have no effective ability to restrict AI companies from using their copyrighted content as training data if that copyrighted content appears anywhere online (either through legitimate licensee websites or other unauthorized sources). Indeed, when an entity like Anthropic can simply go on the internet and scrape copyrighted content for free, that entity has little to no economic incentive to pay money to a rightsholder to separately

[110] I understand from counsel that the legality of Anthropic's scraping practice is contested by the parties in this case, and I offer no opinion as to its legality, one way or the other. I simply note that without copyright law enforcement in this context, rightsholders' ability to restrict access to their content for purposes of AI training data is severely impacted, if not wholly destroyed.

license that same content for use in AI training. Thus, it is my opinion that, absent legal enforcement of copyright law, Anthropic's crawling and scraping conduct would severely impact, if not wholly destroy, the licensing market for Publishers' copyrighted content as AI training data.

ii. By Subverting Publishers' Practical Ability to Restrict Access to Their Copyrighted Works, Anthropic's Scraping Conduct Enables It to Avoid the Licensing Process Altogether

146. Because Anthropic faces minimal practical obstacles to obtaining large quantities of unlicensed copyrighted content, by downloading preassembled datasets like Common Crawl or by conducting its own scraping, my understanding from the record is that Anthropic has not bothered to even attempt licensing much of the copyrighted content it uses to train its model. For example, Anthropic has never even attempted to negotiate with Publishers for a license to use their copyrighted lyrics. Turvey 30(b)(6) Tr. 37:20–38:1. Indeed, at least with respect to the specific licensing market for song lyrics as AI training data, [redacted] *see* Turvey 30(b)(6) Tr. 38:2–5, and Anthropic's designated representative has said that [redacted] Turvey 30(b)(6) Tr. 65:21–23.

147. Anthropic's reluctance to license song lyrics from Publishers is not for a lack of need for such data. *See* above § IV.C.1; *see also* Anthropic_000218479 [redacted] Indeed, like its competitors, Anthropic requires vast amounts of text data to train its Claude models, and its designated representative testified that [redacted] *See* Shan Report ¶ 40; *see also* Turvey 30(b)(6) Tr. 25:21–22 [redacted] 26:17–18 [redacted]

[redacted] As noted above, several other Anthropic witnesses, including its Chief Science Officer Jared Kaplan, have testified to the utility of song lyrics as training data, *see above* § V.A.2, and Anthropic [redacted] Turvey 30(b)(6) Tr. 23:23–24:8. Anthropic has also acknowledged that "[i]t's likely that some lyrics from some publishers' songs were included in Anthropic's model training." B. Mann 30(b)(6) Tr. 96:10–15.

148. Anthropic's reluctance to license song lyrics from Publishers also cannot be for a lack of funds. Apart from Anthropic's $183–$350 billion valuation, Anthropic's designated witness testified that the company maintains a [redacted] Turvey 30(b)(6) Tr. 66:14–17 (referring to Anthropic_0000228080). [redacted] *See* Anthropic_0000228080. According to Mr. Turvey, Anthropic's [redacted] Turvey 30(b)(1) Tr. 68:8–21. I also understand that Anthropic has separately purchased over $66 million worth of print books in connection with its destructive-scanning project. *See* Anthropic_0000441006 (reflecting monies paid on "[Project] Panama Orders"); *see also* Turvey 30(b)(6) Tr. 96:16–24 [redacted] An internal planning document from Anthropic CEO Dario Amodei also [redacted] *see* Anthropic_0000217184, at -86, [redacted] *See* Anthropic_0000582634.

149. Moreover, [redacted] *See* Anthropic_0000429496; *see also* Turvey 30(b)(6) Tr. 39:20–25. While my understanding is that Anthropic [redacted] shows that Anthropic is able to participate in the functioning licensing market for lyrics.

150. Anthropic also has sufficient information to identify the relevant counterparties (*i.e.*, rightsholders) from whom to license. An internal tracking document shows that Anthropic [redacted]. *See* Anthropic_0000231226. The document specifically notes [redacted] The document also provides a specific assessment as to [redacted] *See id.*; *see also* Turvey 30(b)(6) Tr. 64:2–19. The document also [redacted] *Id.*

151. Other internal Anthropic documents and witness testimony also support a conclusion that Anthropic determined that its unlicensed crawling and scraping practices were faster and more cost-efficient than entering the licensing market, ostensibly given the scale of what Anthropic believed necessary for its data consumption. For example, when commenting on a document titled "Anthropic Plan for 2023," *see* Anthropic_0000217184, Anthropic's CEO Dario Amodei

recognized that, while there are "many places from which we could in principle buy [books and scientific papers]" for use in AI training, doing so is "a huge legal/practice/business slog." Anthropic_0000215992; *see also* J. Kaplan Tr. 182:25–186:16; Anthropic_0000217184, at -88 [redacted] Anthropic's Dr. Kaplan echoed this sentiment by stating his belief that [redacted] J. Kaplan Tr. 209:1–5; *see also* Anthropic_0000479241.

152. Internal Anthropic documents suggest that Anthropic's emphasis on acquiring vast amounts of cheap or free data through its unlicensed scraping was at least partly motivated by competition with other large AI companies, like OpenAI and Google. For example, [redacted] *See* Anthropic_0000011376, at -82 & -86. In another internal document, an Anthropic employee wrote that "[o]ne of the challenges we face is that the break-neck competition with OpenAI has [redacted] *See* Anthropic_0000443204, at -09. Similarly, in July 2023, Jared Kaplan described his concern that Anthropic's [redacted] and that, [redacted] *See* Anthropic_0000479241, at -42; J. Kaplan Tr. 202:14–203:7. Another internal policy document written by Mr. Turvey notes that [redacted]

[redacted] Anthropic_0000229152; *see also* Anthropic_000218479 [redacted]

153. Accordingly, from an economic point of view, Anthropic would have been incentivized *not* to engage in licensing negotiations with rightsholders, including Publishers, given its strategy of acquiring the same content for free (via crawling/scraping). Thus, with respect to the AI-licensing market for song lyrics, specifically, Anthropic subverts the licensing market by refusing to pay any amount of money to any music publishers, including Plaintiffs, to use their song lyrics as AI training data. This refusal comes despite the fact that *other* AI companies have been willing to pay Publishers to license their lyric data. *See above* V.B.1.a. As a result, Anthropic subverts the market as a whole and drives down the value of Publishers' licensing rights.

iii. Anthropic's Policy of Not Telling Inquiring Publishers Whether It Uses Their Content for AI Training Increases Licensing Transaction Costs for Rightsholders

154. Anthropic has also adopted certain corporate policies related to its content-acquisition practices that subvert the third licensing-market precondition that I described above. Specifically, Anthropic increases transaction costs by [redacted] *See* Turvey 30(b)(1) Tr. 70:17–22.

155. [redacted] Turvey 30(b)(6) Tr. 109:5–13. In the document, Tom Turvey [redacted]

[redacted] Anthropic_0000229152, at -55. Specifically, Mr. Turvey warned that [redacted] *Id.* at -56. During his 30(b)(6) deposition, Mr. Turvey confirmed that Anthropic's current official policy is [redacted] *See* Turvey 30(b)(1) Tr. 70:17–22.

156. While Anthropic's [redacted] may comport with its view—rightly or wrongly—that it is "fair use" to use any copyrighted material as AI training data that it crawls, scrapes, or otherwise downloads, *see above*, the company's [redacted] increases discovery and search costs for rightsholders and further undermines trust and transparency in the market.

d. It is Difficult, if not Impossible, to Quantify Publishers' Harm as a Result of Anthropic's Unlicensed Copying and Use of Their Lyrics as AI Training Data

157. It is my opinion that Anthropic's unlicensed copying and use of Publishers' lyrics through its practice of scraping, crawling, and downloading of third-party datasets, subverts the necessary preconditions that serve as the foundation of a burgeoning AI licensing market for copyrighted works. The resulting harm to Publishers is difficult, if not impossible, to calculate with any reasonable certainty for multiple reasons.

158. First, Anthropic's unlicensed copying and use of Publishers' copyrighted works harms Publishers' ability to negotiate restrictions on AI-generated outputs that potentially compete with Publishers' copyrighted works. These contractual protections are important because they counterbalance the threat of market substitution by AI-created works. *See* § V.A above. For example, if Anthropic continues to train its AI models on copyrighted lyrics, without restriction and without returning any value to the rightsholders, those models will continue to create market substitutes based on those copyrighted lyrics that are capable of siphoning value from the revenue-

sharing pools of digital platforms like Spotify and YouTube. *See id*. Indeed, this underscores the importance of the output-ownership, takedown provisions, and off-site restrictions contained in UMPG's Udio and Klay Agreements. *See* § V.B.1.b above.

159. Second, Anthropic's unlicensed copying and use of Publishers' lyrics normalizes the circumvention of licensing by other AI companies. For example, if Anthropic continues its unlicensed scraping practices without restriction (as it does now), other AI companies in the market will have reduced incentives to license from rightsholders if they determine that they can also get the same content for free or much cheaper by adopting Anthropic's strategy. Even worse, other AI companies may feel compelled to adopt Anthropic's unlicensed content-acquisition strategies in order to *compete* with Anthropic. As a result, rightsholders would lose negotiating power in licensing discussions with other AI companies that would otherwise be willing to pursue a license for copyrighted works. This in turn would result in an overall drop in value for those works. By the same token, Anthropic's unlicensed copying and use of Publishers' lyrics could also undermine Publishers' attempts and ability to renew and renegotiate existing licenses.[111]

160. Third, Anthropic's unlicensed copying and use of Publishers' lyrics deprives Publishers of revenue that Anthropic would have paid in licensing fees to include Publishers' lyric catalog in its training corpus.[112] I understand from counsel that, to calculate this type of harm, courts sometimes assess a "hypothetical" negotiation between the parties based on potential "benchmark" agreements. As noted above, the difficulty with doing that here is that there are

[111] *See, e.g.*, Coleman Tr. 178:14–17 ("And then it also diminishes the value to the authorized licensees who are paying us fair or equitable rates for the use of our -- our valuable property.").

[112] I understand Anthropic disputes whether it is required to license Publishers' works in order to use them as AI training data. For purposes of this opinion, I assume that Anthropic is required to do so.

relatively few benchmark agreements to rely on, given the infancy of AI technology and the licensing market for AI training data. Indeed, the only relevant benchmark agreements available are the Udio Agreement and the Klay Agreement. Even these agreements, however, are expressly "non-precedential" and include several rights and restrictions (like the ownership provision described above) that are nearly impossible to quantify in value.

161. All of this leads me to conclude that the harm from Anthropic's unlicensed copying is significant but not reliably quantifiable.[113]

2. Anthropic Deprived Publishers of Considerable Licensing Revenue to Display and Reproduce Lyrics

162. Anthropic's unlicensed[114] copying and display of Publishers' lyrics as AI-generated outputs deprived Publishers of revenue that they would have earned if Anthropic had sought a license to do so.

163. Publishers generate significant revenue by licensing the display rights for their lyrics to numerous entities. As I discussed above in § IV.B.2, these rights generate fees that can rise to as much as several million dollars per year. [redacted]

[113] I understand that Publishers' witnesses in this case share the same conclusion. *See, e.g.*, Kokakis Tr. 333:17–24 ("So that's why I say the harm is incalculable because there is so many different ways that this type of activity can cause harm. It's not just that we are not being paid by Anthropic. It's the knock-on effect and the consequences of Anthropic's actions and those like Anthropic, leading to a chilling effect in the market, undermining other companies that might otherwise license from us, undermining companies that do pay us from paying us more.").

[114] For purposes of my analysis, I assume that Anthropic's conduct is unlicensed. I offer no opinion on whether Anthropic's conduct is licensed or authorized.

[redacted]”[115] [redacted]

164. Publishers also generate lyric-display revenue from lyric-display sites, like Genius, LyricFind, and MusixMatch. *See* above § IV.B.2.a [redacted] *See, e.g.*, ABKCO_0000000052; ABKCO_0000000328; ABKCO_0000000045; UMPG_0000000311; UMPG_0000018093; UMPG_0000000335; CONCORD_0000000168; CONCORD_0000000212.

165. Last, Publishers also generate lyric-display revenue from social media companies, including TikTok, Snap, and Meta, and other lyric-oriented businesses, like karaoke and sheet music companies. *See* IV.B.2.b. These license agreements also generate significant annual revenue for Publishers.

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[115] UMPG_0000000388, at -88; UMPG_0000023090–93.

[116] UMPG_0000023257–75.

[117] UMPG_0000023011 (Fourth Amendment).

166. By training on and outputting Publishers' lyrics in response to search requests from Claude users, Anthropic displays Publishers' lyrics for free, depriving Publishers of the licensing revenue they would have earned if Anthropic had paid for the right to display Publishers' lyrics. In effect, this creates a competing service and another market substitute to Publishers' licensees.[118] Publishers' expert, Josh Dennis, compiled an analysis and review of a statistically representative sample of these search requests in another report, which I have reviewed. *See* Dennis Report § VII.D.

167. Accordingly, it is my opinion that Publishers have lost significant licensing revenue that Anthropic would otherwise have paid Publishers in order to display and reproduce Publishers' lyrics to its Claude users and customers. Without personal knowledge of the various and specific business considerations at play in any corporate negotiation, it is likely impossible to determine precisely what Anthropic would have paid to license Publishers' lyrics here, but the payments reflected in Publishers' agreements with DSPs, lyric-display sites, and social media companies provide some idea as to valuation.

3. Anthropic's Conduct Enables the Creation of Damaging and Unrestricted AI-Generated Derivatives

168. It is also my opinion that, by training its Claude AI models with Publishers' copyrighted lyrics without authorization, Anthropic prejudicially impacted Publishers' abilities to

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[118] *See, e.g.*, Berschback Tr. 206:19–207 ("[T]o the extent that someone wants to know the lyrics to a given song and can go to various places to find those lyrics, amongst them licensed sites and unlicensed sites, where potentially the costs for the latter is zero. And when I say "cost," I mean cost in terms of monetary value, no payment exchanged, no ads that you have to view, no friction between you and what you want. In that sense, to the extent that Claude will provide lyrics in response to, 'What are the lyrics to blank song' type prompts, it's competing with -- on a free basis with licensed sites that pay songwriters. And that is obvious harm to both Concord and its songwriters and the licensed sites.").

license the creation of AI-Assisted derivative works and restrict the creation of offensive and reputationally damaging derivative works.

169. I understand from counsel that the right to create derivative works from a copyrighted work is an exclusive right under statutory law. *See* 17 U.S.C. § 106(2). I also understand, from the evidence I have reviewed, that Publishers regularly license and protect this right, including in the form of "sampling" agreements. Kokakis Tr. 299:10–21 ("There have been instances when we have licensed mash-ups which are derivatives, and that is part of our sampling business that [] we have within Universal Publishing."); Berschback Tr. 175:11–14 (discussing unlicensed sample enforcement). Recently, Plaintiff UMPG also executed the Udio Agreement, see above, which licensed, among other things, [redacted]

See UMPG_0000024457, at -58.

170. By using Publishers' compositions as training data and training Claude to produce helpful outputs based on those compositions, Anthropic uses Publishers' compositions as samples in new works of its own creation. This is essentially what Publishers offer when licensing their works as individual compositions for specific, limited uses. But Anthropic's use vastly exceeds the scope of any existing license. Claude creates its own "samples" of varying lengths, to be combined with some unknown set of new lyrics, to be used in any type of written work or musical work with lyrics. No existing license represents a perfect comparator for the extent of this grant of rights. It would certainly represent multiple times the value of any current commercial license.

171. As I highlighted above in § V.A.3, analysis from Plaintiffs' expert Josh Dennis illustrates how Claude is already being asked to and is producing such unauthorized derivatives

and samples in practice in the form of requests for original songs inspired by existing songs and artists.

172. Anthropic's conduct harms Publishers in multiple material ways. First, Anthropic deprives Publishers of a licensing fee for the right to generate AI-assisted derivatives of Publishers' works. Plaintiff UMPG received substantial compensation in exchange for licensing this right in the Udio Agreement (see above). While there is no way to assess the specific proportion of the deal's final terms that relate to derivative work outputs, [redacted]"[119] *See* UMPG_0000024457, at -66. Anthropic's conduct deprives UMPG and the other Publishers of similar compensation and contractual acknowledgment regarding ownership of outputs embodying Publishers' works.

173. Second, by training its Claude models to be able to generate AI-assisted derivatives of Publishers' works without authorization, Anthropic normalizes such conduct and encourages other AI companies to do the same, thereby weakening Publishers' negotiating power in future licensing renewals.

174. Third, by training its Claude models to be able to generate AI-assisted derivatives of Publishers' works without authorization, Anthropic denied Publishers the right and ability to

[119] *See also* Kokakis Tr. 197:10–1 [redacted]

contractually require Anthropic to observe certain safeguards and protections that would restrict or prevent Claude from creating reputationally damaging derivatives, such as distasteful mashups of Publishers' lyrics with offensive phrases or modifications. I understand this is a significant concern for Publishers and, based on UMPG's deposition testimony, [redacted] *See* Kokakis Tr. 209:19–24 [redacted]

175. Indeed, when Anthropic uses Publishers' compositions contrary to the songwriters' and Publishers' intent, Anthropic also devalues the works themselves. Such is the case for consumers who enjoy songs based on the content or messaging in the lyrics. For example, unauthorized "mashups" of religious faith-based music with sexually explicit words or themes can erode consumers' perception of songwriters or publishers. *See* Draughon Decl. ¶ 22. These unauthorized derivatives discourage the future consumption of works from these songwriters or publishers with the consequence of devaluing current and future works.

176. The foregoing harms are once again difficult, if not impossible, to quantify, including because it is nearly impossible to quantify the reputational harm that may flow from an offensive or distasteful cover, remix, or mashup of Publishers' works.

4. Anthropic has Diminished the Overall Value of Publishers' Works Through its Unlicensed Scraping and Collection Practices

177. Beyond licensing, Anthropic's infringement also undermines the value of the entire market for song lyrics, including Publishers' asserted works in this case. As my colleagues and I

have demonstrated in extensive research on the impact of digital piracy, the unauthorized use or reproduction of copyrighted works reduces the market value of these works, which means lowered income for publishers and songwriters.[120] Specifically, in a 2020 Piracy Landscape Study conducted for the U.S. Patent and Trademark Office, my colleagues and I document that 29 of the 33 peer-reviewed academic studies of the impact of piracy on legal sales found that piracy caused statistically and economically significant harm to sales in legal markets.[121]

178. This contraction in the market has an indirect effect as well. When unauthorized content circulates widely in the marketplace, it has a depressing effect on even legal sales. Our research has shown that presence of freely available unlicensed content reduces the prices consumers are willing to pay for licensed content.[122]

179. These harms are felt by Publishers whether Anthropic provides complete copies of Publishers' lyrics or in part. In delivering complete, verbatim or near-verbatim copies of Publishers' lyrics, Anthropic usurps a service typically provided by licensees such as lyric aggregators or karaoke services, who are required to pay licensing fees for their use of Publishers' lyrics. This conduct robs Publishers of licensing fees, inhibits their ability to negotiate licenses, undermines the value of the market for song lyrics, and reduces the prices consumers are willing to pay.

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[120] Brett Danaher, Michael D. Smith & Rahul Telang. *Piracy Landscape Study: Analysis of Existing and Emerging Research Relevant to Intellectual Property Rights Enforcement of Commercial-Scale Piracy*, U.S. PATENT AND TRADEMARK OFFICE, Economic Working Paper No. 2020-02 (March 20, 2020), https://www.uspto.gov/sites/default/files/documents/USPTO-Piracy-Landscape.pdf.

[121] *Id.*

[122] *See, e.g.,* Miguel Godinho de Matos, Pedro Ferriera & Michael D. Smith, *The Effect of Subscription Video-On-Demand on Piracy: Evidence from a Household Level Randomized Experiment*, 64 MGMT. SCIENCE 12, 5610 (2017).

180. The same harms befall Publishers when Anthropic provides Publishers' lyrics in part or combined with other texts or materials obtained from other sources since such uses of Publishers' lyrics would require licensing agreements as well.

181. Anthropic's delivery of Publishers' lyrics without attribution also divests songwriters of recognition and reputation among consumers and music publishers, further undermining the economic value of their compositions and services. *See also* below § V.C (discussing how removal of attribution reduces intrinsic incentives to create). By the same token, Anthropic's conduct violates the "inherent trust" that Publishers' songwriters give Publishers to protect their rights, and when songwriters see or hear of lyrics being reproduced without attribution, that "erodes [Publishers'] relationship with them, and that creates an inherent harm to our business relationship with them." Coleman Tr. 178:7–13.

182. Even with guardrails that restrict some infringing responses by Claude, Publishers face the same economic harms so long as Anthropic continues to exploit Publishers' lyrics without obtaining any licenses for its uses.

183. Ultimately, all of this combines to depreciate the value of creative output. In the context of music publishing, this hurts the publisher companies, the songwriters, and their licensees. And in the long run, this depreciation in market incentives reduces artists' incentives to create, which harms everyone.[123]

[123] *See, e.g.,* Rahul Telang & Joel Waldfogel, *Piracy and New Product Creation: A Bollywood Story*, 43 INFO. ECON. AND POLICY, 1 (2018); Brett Danaher & Michael D. Smith, *Digital Piracy, Film Quality, and Social Welfare*, 24 GEO. MASON L. REV. 4, 923 (2017).

C. Anthropic's Removal of Copyright Management Information from its Training Corpus Harms Publishers and their Artists through a Loss of Attribution

184. I understand that Publishers in this case have alleged that Anthropic maintains a practice of "filtering" text data that it has obtained as part of its pretraining process for its Claude AI model. I understand and assume from reviewing the report of Publishers' expert Shawn Shan that this "filtering" results in the removal of identifying copyright management information, or "CMI." Shan Report ¶¶ 57–59. I also understand and assume from Mr. Shan's report that this removal of CMI means that the Claude model will not be trained on that information and therefore cannot generate any outputs containing that information. *Id*. As a result, I understand and assume that Claude is able to, and does, reproduce ingested copyrighted works *without* those works' corresponding CMI. This removal of CMI results in a loss of attribution for Publishers and their artists, which, as discussed above causes economic harm to Publishers and their songwriters. *See* above ¶ 183183. The removal of CMI also causes harm to Publishers and their songwriters by damaging the intrinsic incentives of creators to create.

185. As discussed in the U.S. Copyright Office's report on *Identifying the Economic Implications of Artificial Intelligence for Copyright Policy*, one characteristic of creative works that complicates economic analyses is that creators often face strong intrinsic incentives to create.[124] Humans have a natural drive to be creative and fulfilling that drive generates utility for the creator. The utility that comes from creativity in and of itself serves as an incentive to create works. When a creator is deciding whether to produce something, they will implicitly consider both the

[124] Brent A. Lutes, ed., *Identifying the Economic Implications of Artificial Intelligence for Copyright Policy*, UNITED STATES COPYRIGHT OFFICE (Feb. 2025), https://www.copyright.gov/economic-research/economic-implications-of-ai/Identifying-the-Economic-Implications-of-Artificial-Intelligence-for-Copyright-Policy-FINAL.pdf, at 33.

intrinsic incentives (the internal satisfaction they will gain through creating the work) and the extrinsic incentives (the commercial value derived from others consuming the work).

186. The foregoing discussion in this report has so far focused mainly on how Anthropic's unauthorized ingestion of copyrighted works may affect extrinsic incentives of creators and rightsholders. In terms of influencing behavior, intrinsic incentives have the same economic characteristics as extrinsic incentives: the higher the reward for engaging in an activity (whether the reward derives from within or is captured through some external transaction), the more people will engage in that activity. Thus, Anthropic's removal of artist attribution as part of its unauthorized ingestion of copyrighted works to train its AI models also has the propensity to change intrinsic incentives for creators.[125]

187. For example, some of the intrinsic utility derived from creativity is contingent on recognition. Indeed, many creators—especially musicians, artists, and their labels—distribute works in part because they wish to be recognized as creators and to increase their profile, such that they can sell other related goods and services (like concert tickets, merchandise, and advertising sponsorships). Thus, when CMI is removed from a work, so too is the creator's attribution to that work, which, by consequence, may affect the creator's intrinsic incentives to create more of that work. That reduction in intrinsic incentive negatively impacts Publishers in this case who benefit when one of their creators builds a large body of works, the rights of which can then, for example, be sold or licensed more efficiently as part of a catalog.[126]

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[125] There is a (relatively small) body of literature on the role of intrinsic incentives and how they interact with and compare to extrinsic incentives, but here, I focus narrowly on how intrinsic incentives might change as a result of ingestion.

[126] Publishers' witnesses have testified in this case with similar sentiments. *See, e.g.*, Berschback Tr. 211:1–212:18 ("[A]ttribution is one of the key ways in which other songwriters, publishers, artists, and others connect the song with the songwriter. . . . If you have a songwriter who would

188. The harm from loss of attribution is significant and real but also impossible to quantify. As an economist, I am not aware of any academic studies or meaningful measurements of harm from loss of attribution.

D. Anthropic's Unauthorized Conduct Disincentives Artists and Rightsholders, including Publishers, from Creating or Investing in the Creation of New Works

189. All of the foregoing harms discussed in this report reduce economic incentives for creators to create new works and for music publishers to invest in new works. There is also a reduced incentive to make works public and an increased incentive to restrict access to existing works.

190. As explained above, when a creator is deciding whether to produce something, they will implicitly consider both the intrinsic incentives (the internal satisfaction they will gain through creating the work) and the extrinsic incentives (the commercial value derived from others consuming the work).[127] As with intrinsic incentives, when extrinsic economic incentives diminish for a given activity, fewer people will engage in that activity because the prospect of economic return is reduced. That is the case here.

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normally be credited and known as the author of the song, but all of a sudden [attribution] is stripped away, there's no way that an artist who might want to cut their songs, because they know and they've listened to and they can connect the dots as to who wrote the song, can find out who wrote the song. And there's no way for a publisher, who might be interested in signing them and working with them and developing them can identify them. And there's no way that another songwriter who might want to, you know, cowrite with them can identify who they are. There's no way for a corporate entity or a booking agent who might want to use that songwriter for one of their corporate gigs, which is a way that songwriters make money, no way they can identify who wrote the song; therefore, financial damage from the lost opportunity in all those cases to create more songs, to perform the songs and otherwise.").

[127] Brent A. Lutes, ed., *Identifying the Economic Implications of Artificial Intelligence for Copyright Policy*, UNITED STATES COPYRIGHT OFFICE (Feb. 2025), https://www.copyright.gov/economic-research/economic-implications-of-ai/Identifying-the-Economic-Implications-of-Artificial-Intelligence-for-Copyright-Policy-FINAL.pdf at 33–34.

191. For the reasons discussed in the foregoing sections of this report, Anthropic's alleged conduct in this case—i.e., the unlicensed copying, reproduction, and distribution of Publishers' works that occurs in connection with AI model training—results in myriad significant economic harms, not precisely quantifiable, that all diminish the economic incentive of further creation. Whether it's the loss of revenue from Anthropic's refusal to license Publishers' works, or the increased competition that results from Anthropic's Claude generating market substitutes, the overall economic return that Publishers and their songwriters can expect from their work is reduced. Consequently, so too are songwriters' incentives to create additional works—and music publishers' incentives to invest in new works and emerging artists.

VI. Anthropic Generates Substantial Revenue, Profits, and Investment from Scraping Copyrighted Works for Use in Generative AI Training Without Authorization

A. Anthropic's Revenues and Financial Outlook

192. In this subsection, VI.A, and this subsection only, I have relied on research and analysis that was performed under my direction by Christopher Roebuck and Brian Casey of StoneTurn Group, LLP.

193. Anthropic's revenues have increased substantially since 2023, as reflected in Anthropic's income statement. *See* Anthropic_0000441649; *see* D. Whittle Tr. 94:24–95:12. Figure 1 below shows Anthropic's monthly gross revenues from [redacted] in February 2023 to [redacted] in August 2025. *See* Anthropic_0000441649. *Id.*

[redacted]

194. As shown in Figure 2 below, according to Anthropic's income statement, Anthropic has reported [redacted] "Gross Profit" (revenue minus costs of goods sold) since March 2025, including reported gross profits of approximately [redacted] in August 2025 (the most recent month for which data was available to me). Anthropic_0000441649. According to Anthropic's internal projections, [redacted] Anthropic_0000441649.

[128] It appears from Anthropic's income statement and projections that "Income" is calculated as Gross Revenue less Total Sales Allowance. *See* Anthropic_0000441649.



195. In addition to its substantial growth in revenue and profits, Anthropic has raised large amounts of capital via private funding rounds and other outside investments, including in the form of corporate partnerships. The significant investment in Anthropic, and the valuations at which those investments occurred, are further evidence of investors' expectations that Anthropic's models' performance and profitability will continue to grow rapidly in the future.

196. For example, Figure 3 below shows that, as of Anthropic's series F funding round in September 2025, the company raised a cumulative total of more than $23 billion from investors.[129] More than half of this funding was raised in its series F round alone.[130]

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[129] *Anthropic (ANTH.PVT) Cumulative Capital Raised in Funding Rounds*, YAHOO FINANCE, https://finance.yahoo.com/quote/ANTH.PVT/ (last visited Dec. 17, 2025).

[130] *Id.*

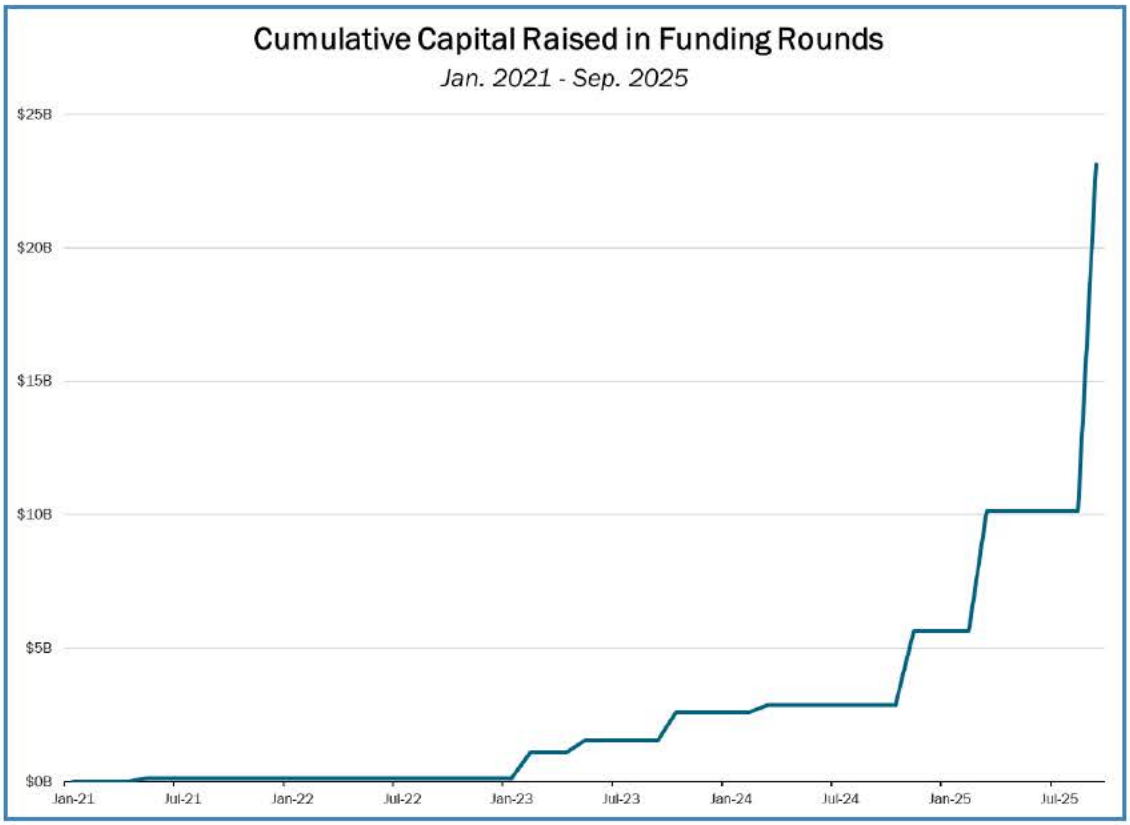


Fig. 3

197. As Fig. 4 below shows, Anthropic was valued at $623 million in its Series A funding round.[131] Less than 5 years later, in September 2025, it was valued at $183 billion, an increase of more than 29,000%.[132] In November 2025, financial news sources reported negotiations of a potential deal valuing the company at near $350 billion.[133]

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[131] *Anthropic (ANTH.PVT) Anthropic Valuation Based on Funding Rounds*, YAHOO FINANCE, https://finance.yahoo.com/quote/ANTH.PVT/, (last visited Dec. 17, 2025).

[132] *Id.*

[133] In November 2025, Anthropic entered a strategic partnership with Microsoft and Nvidia and a single source provided an updated valuation of $350 billion (see Projected Valuation in chart): "The investments have pushed Anthropic's valuation to the range of $350 billion, up from its $183 billion valuation as of September, according to a source close to the deal who asked not to be named because the details are confidential. The terms of the company's next round are still being finalized, the person said." Ashley Capoot & MacKenzie Sigalos, *Anthropic valued in range of*

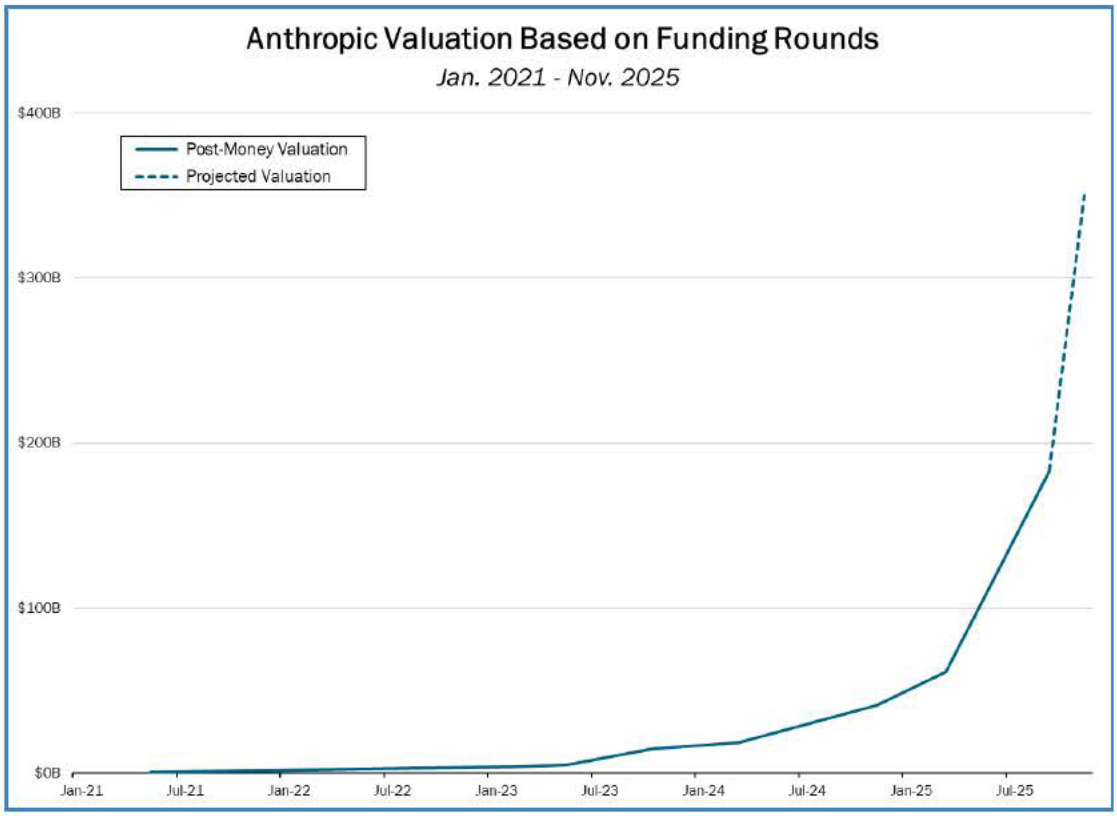


Fig. 4

198. Beyond traditional private funding rounds, Anthropic entered into several partnerships with major technology companies and secured a series of large-scale corporate deals. Anthropic has solidified a strategic partnership with Amazon, designating Amazon Web Services (AWS) as its primary cloud and training provider. Supported by $8 billion in capital commitments

$350 billion following investment deal with Microsoft, Nvidia, CNBC (Nov. 18, 2025), https://www.cnbc.com/2025/11/18/anthropic-ai-azure-microsoft-nvidia.html.

distributed across deals in September 2023[134], March 2024[135], and November 2024[136], the collaboration integrates Anthropic's Claude models directly into Amazon Bedrock and commits Anthropic to training on Amazon's proprietary Trainium chips.

199. In November 2025, Anthropic entered another major strategic partnership with Microsoft and Nvidia. Multiple outlets reported that Nvidia and Microsoft committed to invest together up to $15 billion in Anthropic, which would in turn purchase $30 billion of computing capacity from Microsoft Azure running on Nvidia graphic processing units.[137]

200. As with the private funding rounds, these partnerships reflect expectations of Anthropic's continued rapid growth, as well as the investors' confidence in the performance and competitiveness of the key technology at the heart of Anthropic's business: its Claude AI models.

B. Use Cases Related to Music Lyrics are a Significant Draw for Anthropic Customers

201. As shown in the Dennis Report, a significant share of Anthropic's user and customer base rely on Claude for lyric-related prompts and inquiries, including requests to search for existing song lyrics, generate new song lyrics, interpret song lyrics, translate song lyrics, search for song titles based on lyrics, and many more. *See generally* Dennis Report § VII.D. Based on a

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[134] Jeffrey Dastin, *Amazon Steps Up AI Race with Anthropic Investment*, REUTERS (Sept. 29, 2023), https://www.reuters.com/markets/deals/amazon-steps-up-ai-race-with-up-4-billion-deal-invest-anthropic-2023-09-25/

[135] *Amazon and Anthropic Deepen Their Shared Commitment to Advancing Generative AI*, AMAZON (Mar. 27, 2024), https://www.aboutamazon.com/news/company-news/amazon-anthropic-ai-investment.

[136] *Powering the Next Generation of AI Development with AWS*, ANTHROPIC (Nov 22, 2024), https://www.anthropic.com/news/anthropic-amazon-trainium.

[137] Sebastian Herrera, Amrith Ramkumar & Robbie Whelan, *Nvidia, Microsoft Pour $15 Billion Into Anthropic for News AI Alliance*, WALL STREET JOURNAL (Nov. 18, 2025), https://www.wsj.com/tech/ai/nvidia-microsoft-and-anthropic-commit-to-roughly-45-billion-in-ai-partnership-281b7b1d?gaa_at=eafs.

statistically representative sample of 5 million Claude-user prompts, *see* ECF No. 377, Mr. Dennis identified approximately 6,849 such samples. *See* Dennis Report ¶ 210. By extrapolating those sampled over the full universe of approximately 455 million Claude user prompts that Anthropic received between September 22, 2023, and March 22, 2024. Mr. Dennis concluded that, over just this 6-month period alone, Anthropic received approximately 583,705 lyric-related prompts. *See* Dennis Report ¶ 215.

202. Based on this magnitude of lyric-related requests over such a short period of time, I am of the opinion that use-cases related to music lyrics represent a significant "draw" that attracts users and customers to use or prefer Claude for their Generative AI needs. This is not surprising given that Anthropic itself tracks Claude's usage for lyric generation and modification in its Economic Index, finding that lyricists, poets, and other creative writers are responsible for almost 1% of all Claude inquires (over the sampled period).[138] Indeed, Benjamin Mann, one of Anthropic's 30(b)(6) witnesses, testified that "if you structured your prompts in the right way, then you could ask Claude to use a tool like Google Search as part of its operation," and to that end, "a user could ask Claude to provide song lyrics." B. Mann 30(b)(6) Tr. 24:24–26:4. As discussed above in other sections, several other Anthropic employees have testified to the usefulness of lyrics in building Claude as an all-purpose AI model and to their own prompting of Claude for lyric-related requests. *See* V.B.1.c.iiV.A.2.

C. Anthropic Received Payments from Third-Party Users who Prompted Claude to Generate Outputs Containing Lyrics to Publishers' Works-in-Suit

203. Publishers also asked me to review certain billing information that Anthropic produced in discovery related to specific third-party Claude customers, and to compare that billing

[138] *Anthropic Economic Index*, ANTHROPIC (Sept. 15, 2025), https://www.anthropic.com/economic-index#job-explorer.

information with certain analysis contained in the Dennis Report. Following my review, it is my opinion that Anthropic received payments from third-party users who prompted Claude to generate outputs containing lyrics to Publishers' Works-in-Suit.

204. The Dennis Report includes a list of "Work-in-Suit Records" that Anthropic produced in this case, which appear on their face to include the lyrics to Publishers' Works-in-Suit.[139] *See* Dennis Report Ex. 4. The Works-in-Suit Records include "Unique ID" numbers, which I understand correspond to specific Anthropic users. I also understand that Anthropic produced certain "Billing Data" (reflected in Anthropic_0000524085) in this case that also contain identifying "Unique ID" numbers related to specific Anthropic users. From my own review, the Billing Data also appears to reflect an "account type" and various "amount[s]" that correspond with each Unique ID. The "account type" field appears to reflect the type of account that each Unique ID subscribes to with Anthropic (i.e., "Pro,"[140] "Max,"[141] and "Raven"[142]), while the "amount" field appears to reflect the amount that each Unique ID paid Anthropic at various time intervals.[143]

205. Using the information reflected in the Billing Data, the Dennis Report determined that 48 Unique IDs (the "Paying Accounts") were responsible for paying Anthropic a total "amount" of [redacted] between April 2023 and February 2024. *See* Dennis Report ¶ 233 & Ex. 8.

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[139] I have not reviewed the Works-in-Suit Records that Mr. Dennis analyzed, but I rely on his findings for purposes of the following.

[140] *Introducing Claude Pro*, ANTHROPIC (Sept. 7, 2023), https://www.anthropic.com/news/claude-pro.

[141] *The Max Plan*, ANTHROPIC, https://claude.com/pricing/max, (last visited Dec. 17, 2025).

[142] This appears to be an internal codename for Anthropic enterprise accounts, although I cannot confirm based on the evidence I have reviewed.

[143] These amounts appear to be missing decimals, which, when added, appear to correspond with the monthly subscription fees that Anthropic charges its customers.

Accordingly, it is my opinion that Anthropic received some fraction of the total [redacted] paid by the Paying Accounts as a result of generating the Works-in-Suit Records.

EXHIBIT A

The following is a list of publicly announced AI licensing deals that I am aware of and have followed, in addition to those tracked by the Copyright Alliance[144]:

1. October 2022: OpenAI with Shutterstock (https://www.shutterstock.com/press/20435)[145]
2. September 2023: Generative AI by Getty Images trains on licensed images (https://newsroom.gettyimages.com/en/getty-images/getty-images-launches-commercially-safe-generative-ai-offering)
3. July 2023: OpenAI with Associated Press (https://perma.cc/HZF6-S7KF)
4. December 2023: OpenAI with Alex Springer (https://www.axelspringer.com/en/ax-press-release/axel-springer-and-openai-partner-to-deepen-beneficial-use-of-ai-in-journalism)
5. February 2024: Google with Reddit (https://www.reuters.com/technology/reddit-ai-content-licensing-deal-with-google-sources-say-2024-02-22/)
6. March 2024: OpenAI with Le Monde (https://www.lemonde.fr/en/about-us/article/2024/03/13/le-monde-signs-artificial-intelligence-partnership-agreement-with-open-ai_6615418_115.html)
7. April 2024: OpenAI with Financial Times (https://aboutus.ft.com/press_release/openai)
8. May 2024: OpenAI with Stack Overflow (https://stackoverflow.co/company/press/archive/openai-partnership/)
9. May 2024: Microsoft AI with Taylor & Francis (https://www.thebookseller.com/news/academic-authors-shocked-after-taylor--francis-sells-access-to-their-research-to-microsoft-ai)
10. May 2024: OpenAI with Dotdash Meredith (https://dotdashmeredith.mediaroom.com/2024-05-07-Dotdash-Meredith-Announces-Strategic-Partnership-with-OpenAI,-Bringing-Iconic-Brands-and-Trusted-Content-to-ChatGPT)

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[144] *AI Licensing by Copyright Owners*, COPYRIGHT ALLIANCE, https://copyrightalliance.org/artificial-intelligence-copyright/licensing/copyright-owners/ (last visited Dec. 19, 2025).

[145] *See also Shutterstock Expands Partnership with OpenAI, Signs New Six-Year Agreement to Provide High-Quality Training Data*, SHUTTERSTOCK (July 11, 2023), https://investor.shutterstock.com/news-releases/news-release-details/shutterstock-expands-partnership-openai-signs-new-six-year ("As part of this expanded collaboration, OpenAI has secured a license for access to additional Shutterstock training data including Shutterstock's image, video and music libraries and associated metadata").

11. May 2024: OpenAI with Reddit (https://techcrunch.com/2024/05/16/openai-inks-deal-to-train-ai-on-reddit-data/)

12. May 2024: OpenAI with News Corp (https://investors.newscorp.com/news-releases/news-release-details/news-corp-and-openai-sign-landmark-multi-year-global-partnership)

13. May 2024: OpenAI with The Atlantic and Vox Media (https://www.reuters.com/business/media-telecom/openai-signs-content-deals-with-atlantic-vox-media-2024-05-29/)

14. June 2024: OpenAI with Time (https://time.com/6992955/time-and-openai-announce-strategic-content-partnership/)

15. July 2024: Anthropic with Wiley (https://www.thebookseller.com/news/wiley-set-to-earn-44m-from-ai-rights-deals-confirms-no-opt-out-for-authors; https://news-room.wiley.com/press-releases/press-release-details/2025/Wiley-Partners-with-Anthropic-to-Accelerate-Responsible-AI-Integration-Across-Scholarly-Research/default.aspx)

16. July 2024: Perplexity with 6 media companies including Fortune and Time (https://www.cnbc.com/2024/07/30/perplexity-ai-to-share-revenue-with-publishers-after-plagiarism-accusations.html)

17. August 2024: Prorata.ai with Financial Times, Axel Springer, The Atlantic, Fortune, Universal Music Group (https://time.com/6992955/time-and-openai-announce-strategic-content-partnership/https://www.thewrap.com/ai-startup-prorata-partnerships-atlantic-universal-music-group)

18. August 2024: OpenAI with Time Magazine (https://time.com/6992955/time-and-openai-announce-strategic-content-partnership/)

19. August 2024: OpenAI with Conde Nast (https://www.wired.com/story/conde-nast-openai-deal/)

20. August 2024: OpenAI with Hearst (https://www.hearst.com/-/hearst-and-openai-announce-strategic-partnership)

21. October 2024: Meta with Reuters (https://www.reuters.com/technology/artificial-intelligence/meta-platforms-use-reuters-news-content-ai-chatbot-2024-10-25/)

22. November 2024: Microsoft with HarperCollins (https://authorsguild.org/news/harpercollins-ai-licensing-deal/)

23. November 2024: ProRata.ai with Sky News, The Guardian, Financial Times (https://www.hollywoodreporter.com/business/business-news/uk-media-sky-guardian-ft-ai-partnership-1236067245)

24. December 2024: Perplexity with 14 media companies including The Independent, LA Times (https://www.perplexity.ai/hub/blog/perplexity-expands-publisher-program-with-15-new-media-partnershttps://www.reuters.com/business/media-telecom/ai-startup-perplexity-adds-independent-la-times-its-publishers-program-2024-12-05/)

25. December 2024: OpenAI with Future (https://www.futureplc.com/news/future-and-openai-announce-strategic-partnership/)

26. January 2025: Google with Associated Press (https://apnews.com/article/google-gemini-ai-associated-press-ap-0b57bcf8c80dd406daa9ba916adacfaf)

27. February 2025: OpenAI with The Guardian (https://www.theguardian.com/gnm-press-office/2025/feb/14/guardian-media-group-announces-strategic-partnership-with-openai)

28. February 2025: Open Ai with Schibsted Media Group (https://schibsted.com/blog/openai-and-schibsted-media-group-enter-strategic-partnership/)

29. April 2025: OpenAI with The Washington Post (https://www.washingtonpost.com/pr/2025/04/22/washington-post-partners-with-openai-search-content/)

30. May 2025: Amazon and The New York Times (https://www.nytimes.com/2025/05/29/business/media/new-york-times-amazon-ai-licensing.html)

31. August 2025: Kobalt with ElevenLabs (https://www.musicbusinessworldwide.com/kobalts-ai-suno-most-favored-nation/)

32. October 2025: Perplexity with Getty Images (https://investors.gettyimages.com/news-releases/news-release-details/getty-images-and-perplexity-strike-multi-year-image-partnership)

33. November 2025: Klay with Universal Music Group, Sony Music Group, Warner Music Group (https://variety.com/2025/music/news/universal-warner-sony-strike-licensing-deals-ai-klay-1236586934/https://www.universalmusic.com/music-technology-company-klay-signs-first-of-its-kind-ai-licensing-deals-with-universal-music-group-universal-music-publishing-group-sony-music-entertainment-sony-music-publishing-warner-music-g/)

34. November 2025: Suno with Warner Music Group (https://www.wmg.com/news/warner-music-group-and-suno-forge-groundbreaking-partnership)

35. December 2025: Meta with CNN, Fox New, LeMonde, People, USA Today (https://about.fb.com/news/2025/12/bringing-more-real-time-news-and-content-to-meta-ai/)

36. https://www.theverge.com/news/838927/meta-ai-licensing-deals-cnn-fox-news-usa-today

37. December 2025: OpenAI with Disney (https://thewaltdisneycompany.com/disney-openai-sora-agreement/; https://openai.com/index/disney-sora-agreement/)

APPENDIX 1 - CV

December 2025

Curriculum Vitae

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ADDRESS

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ACADEMIC POSITIONS

2018-Present **Carnegie Mellon University** **Pittsburgh, PA**
J. Erik Jonsson Professor of Information Technology and Public Policy
Co-Director, Initiative for Digital Entertainment Analytics (IDEA)
Co-Director, Initiative for Teaching and Education Analytics (iTEA)
Heinz College of Information Systems and Public Policy

2011-2018 **Carnegie Mellon University** **Pittsburgh, PA**
Professor of Information Technology and Marketing
Co-Director, Initiative for Digital Entertainment Analytics (IDEA)
Heinz College of Information Systems and Public Policy

2009-2011 **Carnegie Mellon University** **Pittsburgh, PA**
Associate Professor of Information Technology and Marketing
Heinz College of Information Systems and Public Policy

Summer 2010 **London Business School** **London, UK**
Visiting Associate Professor of Management Science and Operations

2006-2009 **Carnegie Mellon University** **Pittsburgh, PA**
Dean's Career Development Chair,
Associate Professor of Information Technology and Marketing
Heinz College of Information Systems and Public Policy

2000-2006 **Carnegie Mellon University** **Pittsburgh, PA**
Assistant Professor of Information Technology and Marketing
H. John Heinz III School of Public Policy and Management

EDUCATION

1996-2000 **MIT Sloan School of Management** **Cambridge, MA**
Ph.D. in Management Science and Information Technology
Dissertation Title: Essays on Structure and Competition in Electronic Markets
Dissertation Committee: Erik Brynjolfsson (Chair), John D.C. Little, Thomas Malone

1993-1996 **University of Maryland at College Park** **College Park, MD**

Master of Science in Telecommunications

Thesis Title: An Analysis of Internet Architecture and Services
Thesis Advisor: Curt Grimm

1986-1991 **University of Maryland at College Park** **College Park, MD**

Bachelor of Science in Electrical Engineering, Graduating Summa Cum Laude

Valedictorian and Commencement Speaker, College of Engineering

Spirit of Maryland Award, given by the University of Maryland to the most outstanding graduating senior on the basis of scholarship, leadership, and citizenship

Omicron Delta Kappa Leadership Honor Society Province I Leader of the Year, voted most outstanding student leader among the 24 colleges and universities in ODK Province I

INDUSTRY POSITIONS

1995-1996 **Booz·Allen & Hamilton** **McLean, VA**

Senior Consultant, Telecommunications Client Service Team
Evaluated voice, video, and data communication needs for clients. Performed laboratory experiments using various LAN/WAN technologies for client.

1993-1995 **GTE Systems Corporation** **Rockville, MD**

Member Technical Staff, Advanced Telecommunications Systems Group
Lead technical member of a team assisting in the development of new cellular fraud management products for GTE. Lead knowledge engineer for Telecommunications Network Modeling System.

1991-1993 **GTE Service Corporation** **Stamford, CT**

Engineering Associate Development Program
Completed management training program for GTE's top 20 engineering recruits. Program consisted of three assignments in different components of GTE Corporation:

- *Network Applications Specialist, GTE Northwest Telephone Operations.* Conducted strategic marketing analysis of selected major accounts in GTE's Northwest sales region.
- *Product Specialist, Digital Television System, GTE Spacenet, McLean, Virginia.* Assisted in product management of digital satellite television system.
- *Research Engineer, GTE Laboratories, Waltham, Massachusetts.* Performed experiments using Artificial Intelligence to dynamically allocate wireless communication channels.

TEACHING

95-422 – Managing Digital Transformation, CMU Heinz College, Undergraduate Information Systems Program, Fall 2023-Present.

94-732 – Managing Disruption in Media and Entertainment, CMU Heinz College, Master of Entertainment Industry Management Program, Spring 2021-Present.

95-722 – Digital Transformation, CMU Master of Information Systems Management Program, Fall 2005-Fall 2022. (Teaching Excellence Award, 2009)

95-732 – Marketing Digital Media, CMU Heinz College, Master of Entertainment Industry Management Program, Master of Entertainment Industry Management Program, Spring 2015-2020.

95-732 – Interactive Marketing: Technology in the Marketing Mix, CMU Master of Information Systems Management Program, Spring 2001-2014. (Teaching Excellence Award, 2004)

70-488 – Internet Marketing, CMU Graduate School of Industrial Administration, Spring 2001-Spring 2015. (Outstanding Faculty Award, CMU Chapter, National Society of Collegiate Scholars, 2002.)

95-849 – Advanced Topics in Interactive Marketing, CMU Master of Information Systems Management Program, Fall 2005-Spring 2007.

90-914 – Ph.D. Seminar: Analyzing and Designing Efficient Electronic Markets, Fall 2004.

95-730 – Electronic Commerce, CMU Master of Information Systems Management Program, Spring 2001-04.

90-712 – Public Policy Issues: Electronic Commerce, Spring 2003 (Co-Taught with Karen Clay).

BMIS 3022 – Economics and Information Systems, PhD Seminar, University of Pittsburgh Katz School of Business, Spring 2003 (Co-Taught with Chris Kemerer).

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15. Oros, Jose, Jacqueline Doremus, Kyle Kretschman, Michael Smith, Rahul Telang. 2023. Playlist-Induced Spillovers: Examining Off-Platform Concert Activity for Emerging Artists on Spotify. Workshop on Information Systems and Economics, Hyderabad, India, December 13-15.
16. Dai, Jingwei, Emaad Manzoor, Michael D. Smith. 2023. The Sound Of Silence: Effect Of Disclosing User Location On Users' Social Engagement. *INFORMS Annual Meeting*, Phoenix, Arizona, October 15-18.
17. Van Alstyne, Marshall, Michael D. Smith, Herb Lin. 2023. Improving Section 230, Preserving Democracy, and Protecting Free Speech. *Leading and Managing in the Digital Era*, Athens, Greece, June 19-20.
18. Chu, Yi-Yun, Brett Danaher, Michael D. Smith. 2023. The Impact of Piracy Quality on Box Office Revenue. *Nineteenth Symposium on Statistical Challenges in Electronic Commerce Research*, Bogata, Columbia, June 8-10.
19. Danaher, Brett, Michael D. Smith. 2023. The Effect of Day-and-Date High-Quality Piracy on Box-Office Revenues. *Nineteenth Symposium on Statistical Challenges in Electronic Commerce Research*, Bogata, Columbia, June 8-10.
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29. Burtch, Gord, Daegon Cho, Yangfan Liang, Michael D. Smith. 2020. The Impact of Early Digital Movie Releases on Box Office Revenue: Evidence from the Korean Market. *2020 Workshop on Information Systems and Economics*, December 16-19.
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31. Manzoor, Emaad, George Chen, Dokyun Lee, Michael D. Smith. 2020. Influence via Ethos: On the Persuasive Power of Reputation in Deliberation Online. *2020 Conference on Information Systems and Technology*, November 7-8.
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33. Zeng, Helen, Brett Danaher, Michael D. Smith. 2020. Does Shutting Down Internet Advertising Portals for Prostitution Affect Violence Towards Women? *Sixteenth Symposium on Statistical Challenges in Electronic Commerce Research*, June 18-20.
34. Manzoor, Emaad, George Chen, Dokyun Lee, Michael D. Smith. 2020. Equitable Persuasion in Incentivized Deliberation — An Impossible Tradeoff? *Sixteenth Symposium on Statistical Challenges in Electronic Commerce Research*, June 18-20.
35. Zhou, Mi, George Chen, Pedro Ferreira, Michael Smith. 2019. Disrupting Class: Using Video Analytics and Machine Learning to Understand Student Behavior Online. *Workshop on Information Systems and Economics*, Munich, Germany, December 19-20.
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37. Sim, Jaeung, Daegon Cho, Michael D. Smith. 2019. An Empirical Analysis of the Impact of Smartphone Adoption on Television Viewing. *Symposium on Statistical Challenges in Electronic Commerce Research (SCECR)*, Hong Kong, June 10-13.
38. Zhou, Mi, George Chen, Pedro Ferreira, Michael D. Smith. 2019. Distupting Class: Using Video Analytics and Machine Learning to Understand Student Engagement Online. *ISOM Research Workshop*, Gainesville, Florida, March 14.
39. Danaher, Brett, Michael D. Smith. 2018. The Windowing Challenge: Do Shorter Home Video Release Windows Cannibalize Box Office Ticket Sales? *Workshop on Information Systems and Economics*, San Francisco, CA, December 17-18.
40. Smith, Michael D., Rahul Telang, Mattia Nardotto, Tomaso Valetti. 2018. The Impact of Piracy Notice Sending on Consumer Behavior for Entertainment: Evidence from a Randomized Field Experiment in the UK. *Conference on Digital Experimentation @ MIT*, Cambridge, MA, October 26-27.
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42. Smith, Michael D., Rahul Telang, Mattia Nardotto, Tomaso Valetti. 2018. The Impact of Piracy Notice Sending on Consumer Behavior for Entertainment: Evidence from a Randomized Field Experiment in the UK. *20th Annual Mallen Economics of Filmed Entertainment Conference*, Berlin, Germany, September 27-28.
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44. Burtch, Gord, Edward McFowland III, Michael D. Smith. 2018. On the Relationships Between Movie Piracy, File Quality and Box Office Sales. *Statistical Challenges in Electronic Commerce Research*. Rotterdam, Netherlands, June 18-19.

45. Montgomery, Alan, Michael D. Smith, Xiaoying Tu. 2017. Streaming Toward Sales: Competition and Complementarities in Online Music Consumption. *Workshop on Information Systems and Economics*. Seoul, South Korea, December 14-15.

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47. Ananthakrishnan, Uttara, Michael D. Smith, Rahul Telang. 2017. When Streams Come True: Estimating the Impact of Free Streaming Activity on EST Sales. *19th Annual Mallen Economics of Filmed Entertainment Conference*, New York, NY, November 9-10.

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49. Smith, Michael D., Rahul Telang, Yi Zhang. 2017. I Want You Back: An Empirical Analysis of the Interplay Between Legal Availability and Movie Piracy. USPTO Conference on the Economic Impacts of Intellectual Property on Market Outcomes. Alexandria, Virginia, September 22.

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53. Michael D. Smith, Rahul Telang. 2016. Panel: Big Data and the Future of Entertainment. *Conference on Information Systems and Technology*, Nashville, Tennessee, November 12-13.

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56. Godinho de Matos, Miguel, Pedro Ferreira, Michael D. Smith. 2016. The Effect of TV Content on Piracy: Evidence From a Household Level Randomized Experiment. *Conference on Digital Experimentation*, MIT Sloan School of Management, Cambridge, Massachusetts, October 14-15.

57. Tu, Xiaoying, Brett Danaher, Michael D. Smith. 2016. The Effect of Early International Digital Movie Releases on Domestic Box Office Sales. *Conference on Data Science in the Entertainment Industries*, Santa Monica, California, August 18-19.

58. Smith, Michael D., Rahul Telang. 2016. Targeting, Retargeting, and the Effectiveness of Search Engine Advertising: Evidence from Randomized Field Experiments. *National Bureau of Economic Research Summer Institute*, Economics of IT and Digitization Workshop, Cambridge, Massachusetts, July 21-22.

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62. Danaher, Brett, Michael D. Smith, Rahul Telang. 2015. Copyright Enforcement in the Digital Age: Empirical Economic Evidence and Conclusions. *World Intellectual Property Organization, Advisory Committee on Enforcement*, Tenth Session, Geneva, Switzerland, August 25.

63. Ananthakrishnan, Uttara, Beibei Li, Michael D. Smith. 2015. A Tangled Web: Evaluating the Impact of Displaying Fraudulent Reviews. *INFORMS Conference on Information Systems and Technology*, Philadelphia, PA, October 31 – November 1.

64. Ananthakrishnan, Uttara, Beibei Li, Michael D. Smith. 2015. A Tangled Web: The Impact of Displaying Fraudulent Reviews on Product Search Engines. *The 9th China Summer Workshop on Information Management*, Hefei University of Technology, Hefei, China, June 27-28.

65. Godinho de Matos, Miguel, Pedro Ferreira, Michael D. Smith. 2015. The Effect of Subscription Video-On-Demand on Piracy: Evidence from a Household Level Randomized Experiment. *National Bureau of Economic Research Summer Institute*, Economics of IT and Digitization Workshop, Cambridge, Massachusetts, July 16-17.

66. Choi, Patrick, Peter Boatwright, Michael D. Smith. 2015. When It Snows, It Pours: The Effect of Theatrical Attendance on the Demand of Subsequent DVD Purchases. *Marketing Science Conference,* Baltimore, Maryland, June 18-20.

67. Ananthakrishnan, Uttara, Beibei Li, Michael D. Smith. 2015. The Importance of Being Earnest: Evaluating the Impact of Displaying Fraudulent Reviews on Review Portals. *Winter Conference on Business Intelligence*, Snowbird, Utah, March 12-14.

68. Stephens-Davidowitz, Seth, Hal Varian, Michael D. Smith. 2015. Super Returns? The Effects of Ads on Product Demand. *Allied Social Science Associations, Industrial Organization Society Meeting*, Digital Media Economics, Boston, Massachusetts, January 3-5.

69. Ma, Liye, Alan Montgomery, Michael D. Smith. 2014. The Dual Impact of Movie Piracy on Box-Office Revenue: Cannibalization and Promotion. *Workshop on Information Systems and Economics*, Auckland, New Zealand, December 17-19.

70. Smith, Michael D., Rahul Telang. 2014. Targeting, Retargeting and the Effectiveness of Search Engine Advertising: Evidence from Randomized Field Experiments. *Conference on Digital Experimentation @ MIT*, Cambridge, Massachusetts, October 10.

71. Sivan, Liron, Michael D. Smith, Rahul Telang. 2014. Do Search Engines Influence Media Piracy? Evidence from a Randomized Field Study. *National Bureau of Economic Research Summer Institute*, Economics of IT and Digitization Workshop, Cambridge, Massachusetts, July 17-18.

72. Stephens-Davidowitz, Seth, Hal Varian, Michael D. Smith. 2014. Super Returns? The Effects of Ads on Product Demand. *National Bureau of Economic Research Summer Institute*, Industrial Organization Workshop, Cambridge, Massachusetts, July 17-18.

73. Danaher, Brett, Michael D. Smith. 2014. Gone in 60 Seconds: The Impact of the Megaupload Shutdown on Movie Sales. *Winter Conference on Business Intelligence*, Snowbird, Utah, February 27 – March 1.

74. Gong, Jing, Michael D. Smith, Rahul Telang. 2013. Pricing and Promotions in Digital Channels: Measuring Sales Response to Price Discounts and Promotional Placements. *Workshop on Information Systems and Economics (WISE),* Milan, Italy, December 19-20.

75. Danaher, Brett, Michael D. Smith. 2013. Gone in 60 Seconds: The Impact of the Megaupload Shutdown on Movie Sales. *The Third Annual Research Roundtable on The Law and Economics of Digital Markets*,

Searle Center on Law Regulation and Economic Growth, Northwestern University School of Law, Chicago, IL, July 30.

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80. Smith, Michael D., Rahul Telang. 2013. Release Windows, Piracy, and DVD Sales: Making Sense of the Data. *11th Annual ZEW Conference on the Economics of Information and Communications Technologies*, Mannheim, Germany, June 21-22.

81. Danaher, Brett, Michael D. Smith, Rahul Telang. 2013. Understanding Media Markets in the Digital Age: Economics and Methodology. *National Bureau of Economic Research, Economics of Digitization: An Agenda*. Park City, Utah. June 6-7.

82. Danaher, Brett, Michael D. Smith, Rahul Telang, Siwen Chen. 2013. The Effect of Graduated Response Anti-Piracy Laws on Music Sales: Evidence from an Event Study in France. *The 11th Annual International Industrial Organization Conference*. Media Markets Session. Boston, Massachusetts, May 17-19.

83. Danaher, Brett, Michael D. Smith. 2013. Gone in 60 Seconds: The Impact of the Megaupload Shutdown on Movie Sales. *The 11th Annual International Industrial Organization Conference*. Media and Advertising Session. Boston, Massachusetts, May 17-19.

84. Danaher, Brett, Michael D. Smith, Rahul Telang. 2013. Piracy and Copyright Enforcement Mechanisms. *National Bureau of Economic Research,* Innovation Policy and the Economy Conference, Washington, DC, April 23.

85. Ferreira, Pedro, Miguel Godinho de Matos, Michael D. Smith, Rahul Telang. 2013. The Impact of Popularity on Sales of Movies in Video-on-Demand: a Randomized Experiment. *The National Bureau of Economic Research Economics of Digitization Workshop*. Stanford, California, March 8.

86. Danaher, Brett, Michael D. Smith. 2012. Gone in 60 Seconds: The Impact of the Megaupload Shutdown on Movie Sales. *Workshop on Information Systems and Economics (WISE),* Orlando, Florida, December 15-16.

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88. Danaher, Brett, Yan Huang, Michael D. Smith, Rahul Telang. 2012. An Empirical Analysis of Digital Music Bundling Strategies. *The Second Annual Research Roundtable on The Law and Economics of Digital Markets*, Searle Center on Law Regulation and Economic Growth, Northwestern University School of Law, Chicago, IL, October 11-12.

89. Hu, Yu, Michael D. Smith. 2012. The Impact of eBook Distribution on Print Sales: Analysis of a Natural Experiment. *National Bureau of Economic Research*, Summer Institute, Economics of Information Technology and Digitization Workshop, Cambridge, Massachusetts, July 19-20.

90. Danaher, Brett, Michael D. Smith, Rahul Telang. 2012. Pro-Copyright Enforcement in a Digital Age. *National Bureau of Economic Research*, Economics of Digitization: An Agenda, Chicago, Illinois, June 28-29.

91. Smith, Michael D., Alejandro Zentner. 2012. Bricks, Clicks, Blockbusters, and Long Tails: How Video Rental Patterns Change as Consumers Move Online. *Eighth Symposium on Statistical Challenges in Electronic Commerce Research (SCECR)*, Montreal, Canada, June 28-29.

92. Smith, Michael D., Alejandro Zentner. 2012. Bricks, Clicks, Blockbusters, and Long Tails: How Video Rental Patterns Change as Consumers Move Online. *The 3rd Annual Conference on Internet Search and Innovation*, Chicago, Illinois, June 21-22.

93. Danaher, Brett, Yan Huang, Michael D. Smith, Rahul Telang. 2012. An Empirical Analysis of Digital Music Bundling Strategies. *INFORMS Marketing Science Conference*, Internet and Interactive Marketing Track, Boston, MA, June 7-9.

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97. Hu, Yu, Michael D. Smith. 2012. The Impact of Ebook Distribution on Print Sales: Analysis of a Natural Experiment. The 2012 Information Systems and Operations Management Workshop on Challenges and Opportunities in Managing IT Enabled Multichannel Operations. University of Florida, Gainesville, FL, February 10-11.

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100. Agarwal, Ashish, Kartik Hosanagar, Michael D. Smith. 2011. Location, Location and Location: An Analysis of Profitability and Position in Online Advertising. *INFORMS Annual Meetings*, Washington, DC, October 12-15.

101. Kumar, Anuj, Michael D. Smith, Rahul Telang. 2011. Information Discovery and the Long Tail of Motion Picture Content. *National Bureau of Economic Research*, Summer Institute, Economics of Information Technology and Digitization Workshop, Cambridge, Massachusetts, July 22-23.

102. Kumar, Anuj, Michael D. Smith, Rahul Telang. 2011. Channels and Conflict: Effective Marketing Strategies for Internet Digital Distribution Channels. *Marketing Science Conference*, Internet and Interactive Media Track, Houston, Texas, June 9-10.

103. Agarwal, Ashish, Kartik Hosanagar, Michael D. Smith. 2011. Sponsored Search: Do Organic Results Help or Hurt the Performance and Under What Conditions? *Second Annual Conference on Internet Search and Innovation*, Northwestern University, School of Law, Evanston, Illinois, June 7-8.

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106. Fichman, Mark, Tat Koon Koh, Michael D. Smith. 2010. Multi-homing Users' Preferences for Two-Sided Exchange Networks. *Conference on Information Systems and Technology (CIST)*, Austin, Texas, November 6-7.

107. Fichman, Mark, Tat Koon Koh, Michael D. Smith. 2010. The More the Merrier: Intra-Network Externalities and Multi-Homing in 2-Sided Markets. *Sixth Symposium on Statistical Challenges in Electronic Commerce Research (SCECR)*, Austin, Texas, June 5-6.

108. Kumar, Anuj, Michael D. Smith, Rahul Telang. 2010. Where'd They Go? Cross-Channel Media Consumption Patterns During Broadcast Blackout Windows. *Sixth Symposium on Statistical Challenges in Electronic Commerce Research (SCECR)*, Austin, Texas, June 5-6.

109. Danaher, Brett, Samita Dhanasobhon, Michael D. Smith, Rahul Telang. 2010. Converting Pirates without Cannibalizing Purchasers: The Impact of New Digital Distribution Channels on Internet Piracy. *Industries Studies Conference, Industry Studies Association Meetings*, Chicago, Illinois, May 6-7.

110. Garg, Rajiv, David Krackhardt, Michael Smith, Rahul Telang. 2009. Estimating Diffusion of Music in an Online Social Network. *Winter Conference on Business Intelligence*, David Eccles School of Business, University of Utah, Salt Lake City, Utah, March 11-13.

111. Ma, Liye, Alan Montgomery, Param Singh, Michael D. Smith. 2009. Pre-Release Movie Piracy and Box Office Revenue: Estimates and Policy Implications. *Workshop on Information Systems and Economics (WISE)*, Phoenix, Arizona, December 14-15.

112. Brynjolfsson, Erik, Jeffrey Hu, Michael D. Smith. 2009. A Longer Tail?: Estimating The Shape of Amazon's Sales Distribution Curve in 2008. *Workshop on Information Systems and Economics (WISE)*, Poster Session, Phoenix, Arizona, December 14-15.

113. Garg, Rajiv, Michael D. Smith, Rahul Telang. 2009. Peer Influence and Information Diffusion in Online Networks: An Empirical Analysis. *Conference on Information Systems and Technology (CIST)*, San Diego, California, October 10-11.

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115. Danaher, Brett, Samita Dhanasobhon, Michael D. Smith, Rahul Telang. 2009. Converting Pirates without Cannibalizing Purchasers: The Impact of New Digital Distribution Channels on Internet Piracy. *Society for Economic Research on Copyright Issues 2009 Congress (SERCI)*, San Francisco, California, July 9-10.

116. Smith, Michael D. 2009. Does the Economics of Information and Communications Technologies Matter? Discussion and Application to Digital Media Research. Invited Keynote Address, *7th Annual ZEW Conference on the Economics of Information and Communications Technologies*, Mannheim, Germany, July 3-4, 2009.

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120. Danaher, Brett, Samita Dhanasobhon, Michael D. Smith, Rahul Telang. 2008. Converting Pirates without Cannibalizing Purchasers: The Impact of New Digital Distribution Channels on Internet Piracy. *Workshop on Information Systems and Economics (WISE)*, Paris, France, December 13-14.

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122. Agarwal, Ashish, Kartik Hosanagar, Michael D. Smith. 2008. Location, Location and Location: An Analysis of Profitability and Position in Online Advertising. *INFORMS Annual Meetings*, Washington, DC, October 12-15.
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128. Smith, Michael D. 2008. Experiments in Digital Distribution and their Impact on Physical Sales and Internet Piracy. *Mini-Conference on Marketing and Innovation*, Lally School of Management and Technology, Rensselaer Polytechnic Institute, Albany, New York, May 2-3.
129. Smith, Michael D., Rahul Telang. 2008. Piracy or Promotion? The Impact of the Broadband Internet Penetration on DVD Sales. *Winter Conference on Business Intelligence*, David Eccles School of Business, University of Utah, Salt Lake City, Utah, March 20-22.
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132. Smith, Michael D., Rahul Telang. 2007. Piracy or Promotion? The Impact of the Broadband Internet Penetration on DVD Sales. *INFORMS Annual Meeting*, Seattle, Washington, November 4-7.
133. Chen, Pei-yu, Samita Dhanasobhon, Michael D. Smith. 2007. All Reviews are Not Created Equal: The Disaggregate Impact of Reviews and Reviewers at Amazon.com. *INFORMS Annual Meeting*, Seattle, Washington, November 4-7.
134. Smith, Michael D., Rahul Telang. 2007. Piracy or Promotion? The Impact of the Broadband Internet Penetration on DVD Sales. *Third Symposium on Statistical Challenges in eCommerce Research* (SCECR'07), Stamford, Connecticut, May 18-19.
135. Smith, Michael D., Rahul Telang. 2007. Competing with Free: The Impact of Movie Broadcasts on DVD Sales and Internet Piracy. *International Industrial Organization Conference* (IIOC), Savannah, GA, April 14-15.
136. Smith, Michael D., Rahul Telang. 2007. Piracy or Promotion? The Impact of the Broadband Internet Penetration on DVD Sales. *Economics of Information Systems Workshop*, Department of Decision and Information Sciences, Warrington College of Business, University of Florida, Gainesville, FL, January 26-27.

137. "The Impact of New Technologies and New Distribution Channels on Media Sales and Media Piracy," *Workshop on Information Security Economics*, Center for Discrete Mathematics & Theoretical Computer Science (DIMACS), Rutgers University, January 18-19, 2007.
138. Smith, Michael D., Rahul Telang. 2006. Competing with Free: The Impact of Movie Broadcasts on DVD Sales and Internet Piracy. *Workshop on Information Systems and Economics* (WISE), Chicago, IL, December 9-10.
139. Smith, Michael D., Rahul Telang. 2006. Competing with Free: The Impact of Movie Broadcasts on DVD Sales and Internet Piracy. *INFORMS Annual Meeting*, Pittsburgh, PA, November 5-8.
140. Smith, Michael D., Rahul Telang. 2006. An Analysis of Bittorrent Peer-to-Peer Networks and Internet Movie Piracy. *INFORMS Annual Meeting*, Pittsburgh, PA, November 5-8.
141. Smith, Michael D., Rahul Telang. 2006. Internet Exchanges for Information Goods. *INFORMS Annual Meeting*, Pittsburgh, PA, November 5-8.
142. Krishnan, Ramayya, Michael D. Smith, Rahul Telang. 2006. Peer-to-Peer Technologies: A Research-Oriented Introduction. *INFORMS Annual Meeting*, Pittsburgh, PA, November 5-8.
143. Kemerer, Chris, Charles Liu, Michael D. Smith. 2006. Winners-Take-Some: The Impact of Conversion Technologies on Network Effects in Digital Goods Markets. *INFORMS Annual Meeting*, Pittsburgh, PA, November 5-8.
144. Smith, Michael D., Rahul Telang. 2006. Competing with Free: The Impact of Movie Broadcasts on DVD Sales and Internet Piracy. *Telecommunications Policy Research Conference* (TPRC), Arlington, VA, September 29-October 1.
145. Smith, Michael D., Rahul Telang. 2006. Competing with Free: The Impact of Movie Broadcasts on DVD Sales and Piracy. *INFORMS Marketing Science Conference*, Pittsburgh, PA, June 8-10.
146. Smith, Michael D., Rahul Telang. 2006. Competing with Free: The Impact of Movie Broadcasts on DVD Sales and Piracy. *Second Annual Statistical Challenges in Electronic Commerce Research Symposium*, Carlson School of Management, University of Minnesota, Minneapolis, MN, May 22-23.
147. Smith, Michael D., Rahul Telang. 2006. Competing with Free: The Impact of Movie Broadcasts on DVD Sales and Piracy. *Economics of Information Systems Workshop*, Department of Decision and Information Sciences, Warrington College of Business, University of Florida, Gainesville, FL, February 10-11.
148. Tang, Zhulei, Alan Montgomery, Michael D. Smith. 2005. The Impact of Shopbot Use on Prices and Price Dispersion: Evidence from Disaggregate Data. *Workshop on Information Systems and Economics* (WISE), Irvine, CA, December 9-10.
149. Ghose, Anindya, Michael D. Smith, Rahul Telang. 2005. Internet Exchanges for Used Books: Welfare Implications and Policy Issues. *INFORMS Annual Meeting*, San Francisco, CA, November 13-15.
150. Smith, Michael D. 2005. Peer-to-Peer Business Models and Implications for Markets. *Economics of Digital Business Models*, Paris, France, June 17-18.
151. Tang, Zhulei, Yu Hu, Michael D. Smith. 2005. Protecting Online Privacy: Self Regulation, Mandatory Standards, or Caveat Emptor. *Workshop on the Economics of Information Security* (WEIS), Boston, MA, June 2-3.
152. Ghose, Anindya, Michael D. Smith, Rahul Telang. 2005. Internet Exchanges for Used Books: Welfare Implications and Policy Issues. *Statistical Challenges in Ecommerce*, College Park, MD, May 22-23.
153. Ghose, Anindya, Michael D. Smith, Rahul Telang. 2005. Internet Exchanges for Used Books: Welfare Implications and Policy Issues. *International Industrial Organization Conference* (IIOC), Atlanta, GA, April 8-9.
154. Clay, Karen, Astrid A. Dick, Michael D. Smith. 2005. The Effect of Increased Search Costs on Internet-Enabled Arbitrage: Evidence from the International Textbook Market. *International Industrial Organization Conference* (IIOC), Atlanta, GA, April 8-9.

155. Asvanund, Atip, Ramayya Krishnan, Michael D. Smith, Rahul Telang. 2004. Intelligent Club Management in Peer-to-Peer Music Sharing Networks. *NET Institute Conference on Network Economics*, New York, NY, April 1.

156. Smith, Michael D., Rahul Telang. 2004. Internet Exchanges for Used Goods: A Comparison of Digital and Analog Information Goods. *Workshop on Information Systems and Economics* (WISE), Washington D.C., December 11-12.

157. Ghose, Anindya, Michael D. Smith, Rahul Telang. 2004. Internet Exchanges for Used Books: An Empirical Analysis of Welfare Implications and Policy Issues. *INFORMS Annual Meeting*, Denver, Colorado, October 24-27.

158. Ghose, Anindya, Michael D. Smith, Rahul Telang. 2004. Internet Exchanges for Used Books: An Empirical Analysis of Welfare Implications and Policy Issues. *MISRC/CRITO Symposium on the Digital Divide*, Minneapolis, Minnesota, August 28-29.

159. Krishnan, Ramayya, Michael D. Smith, Zhulei Tang, Rahul Telang. 2003. The Virtual Commons: Why Free-Riding Can Be Tolerated in File Sharing Networks. *Workshop on Information Systems and Economics* (WISE), Seattle, Washington, December 13-14.

160. Hu, Yu, Michael D. Smith, Zhulei Tang. 2003. Protecting Online Privacy: Self Regulation, Mandatory Standards, or Caveat Emptor. *Workshop on Information Systems and Economics* (WISE), Seattle, Washington, December 13-14.

161. Asvanund, Atip, Michael D. Smith, Rahul Telang. 2003. "Intelligent Club Management in Peer-to-Peer Music Sharing Networks." *Workshop on Information Technology and Systems* (WITS), Seattle, WA, December 13-14.

162. Hosanagar, Kartik, John Chuang, Michael D. Smith. 2003. Optimal Pricing of Content Delivery Network Services. *Workshop on Information Technology and Systems* (WITS), Seattle, WA, December 13-14.

163. Brynjolfsson, Erik, Astrid A. Dick, Michael D. Smith. 2003. "Search and Product Differentiation at an Internet Shopbot." *Quantitative Marketing and Economics Conference* (QME), Chicago, IL, October 24-25.

164. Brynjolfsson, Erik, Alan Montgomery, Michael D. Smith. 2003. "'An Empirical Study of Consumer Choice Behavior at an Internet Shopbot." *Marketing Science Conference*, College Park, MD, June 12-15.

165. Asvanund, Atip, Ramayya Krishnan, Michael D. Smith, Rahul Telang. 2003. "Intelligent Club Management in Peer-to-Peer Music Sharing Networks." *Workshop on the Economics of Peer-to-Peer Systems*, Berkeley, CA, June 5-6.

166. Brynjolfsson, Erik, Yu Hu, Michael D. Smith. 2003. "Consumer Surplus in the Digital Economy: Estimating the Value of Increased Product Variety." *International Industrial Organization Conference* (IIOC), Boston, MA, April 4-5.

167. Brynjolfsson, Erik, Yu Hu, Michael D. Smith. 2003. "Consumer Surplus in the Digital Economy: Estimating the Value of Increased Product Variety." Firm Behavior and the Internet Economy, *Allied Social Science Association / American Economic Association* (ASSA/AEA), Washington, D.C., January 3-5.

168. Clay, Karen, Stanley Ouyang, Michael D. Smith, Eric Wolff. 2003. "Leader-Follower Behavior on the Web: Evidence from Online Bookstores." Firm Behavior and the Internet Economy, *Allied Social Science Association / American Economic Association* (ASSA/AEA), Washington, D.C., January 3-5.

169. Clay, Karen, Stanley Ouyang, Michael D. Smith, Eric Wolff. 2002. "Leader-Follower Behavior on the Web: Evidence from Online Bookstores." *Workshop on Information Systems and Economics* (WISE), Barcelona, Spain, December 12-14.

170. Montgomery, Alan, Michael Smith. 2002. "The Profitability of Shopbot Design." *Marketing Science Conference*, Edmonton, Alberta, Canada, June 28-30.

171. Smith, Michael. 2002. "Structure and Competition in Electronic Markets." *American Marketing Association* (AMA), Winter Educators Conference, Special Session on Doctoral Dissertation Research in Electronic Commerce, Austin, Texas, February 22-25.
172. Brynjolfsson, Erik, Yu Hu, Michael Smith. 2001. "Consumer Surplus in the Digital Economy: Estimating the Value of Access to New Goods Enabled by Electronic Markets." *Workshop on Information Systems and Economics* (WISE), New Orleans, Louisiana; December 14-15.
173. Smith, Michael. 2001. "Toward an Understanding of the Impact of Shopbots on Electronic Markets." Marketing Sciences Institute Conference on Marketing to and Serving Customers Through the Internet, Boca Raton, Florida, December 6-7.
174. Clay, Karen, Michael Smith, Eric Wolff. 2001. "Lead, Follow, or Go Your Own Way: Empirical Evidence Against Leader-Follower Behavior in Electronic Markets." *Telecommunications Policy Research Conference, Alexandria* (TPRC), Virginia, October 27-29.
175. Asvanund, Atip, Karen Clay, Ramayya Krishnan, Michael Smith. 2001. "Bigger May Not Be Better: An Empirical Analysis of Optimal Membership Rules in Peer-to-Peer Networks." *Telecommunications Policy Research Conference* (TPRC), Alexandria, Virginia, October 27-29.
176. Smith, Michael. 2001. "Search and Transaction Costs on the Internet." University of California at Berkeley Invitational Choice Symposium, Monterey, California, June 1-5.
177. Smith, Michael, Erik Brynjolfsson. 2001. "Customer Decision-making at an Internet Shopbot," National Bureau of Economic Research (NBER), Program on Electronic Commerce, Bodega Bay, California, January 26-27.
178. Smith, Michael. 2000. "The Law of One Price? Price Dispersion and Price Matching in Electronic Markets." *Workshop on Information Systems and Economics* (WISE), Brisbane, Australia; December 14-15.
179. Brynjolfsson, Erik, Michael Smith. 1999. "The Great Equalizer? The Role of Shopbots in Electronic Markets." *Workshop on Information Systems and Economics* (WISE), Charlotte, North Carolina; December 11-12.
180. Brynjolfsson, Erik, Michael Smith. 1999. "Frictionless Commerce? A Comparison of Internet and Conventional Retailers," 1999 *Computing in Economics and Finance* (CEF) Conference; Boston, Massachusetts; June 24-26.
181. Brynjolfsson, Erik, Michael Smith. 1998. "Internet Market Efficiency: Fact or Friction?" *Workshop on Information Systems and Economics* (WISE), New York, New York; December 11-12. (Best Student Presentation Award)

INVITED ORAL PRESENTATIONS

1. "Empirical Evidence for the Effectiveness of Judicial Site Blocking," Academic Research Presentation, Center for the Protection of Intellectual Property, Summer IP Institute, Beaver Creek, Colorado, July 29-31, 2025.
2. Testimony to the Senate Judiciary Committee, Subcommittee on Crime and Counterterrorism, "Too Big to Prosecute?: Examining the AI Industry's Mass Ingestion of Copyrighted Works for AI Training." July 16, 2025. (https://www.judiciary.senate.gov/committee-activity/hearings/too-big-to-prosecute-examining-the-ai-industrys-mass-ingestion-of-copyrighted-works-for-ai-training)
3. "Foreign Online Piracy: How the Courts Can Protect American IP," Panelist, Information Technology and Innovation Foundation, Rayburn House Office Building, June 26, 2025.
4. "Unlocking Creativity: The Power and Promise of Copyright," Panelist, U.S. Chamber of Commerce, Global Innovation Policy Center, June 24, 2025.
5. "AI in Society: Impact on Young People," Panelist, Houses of Parliament, London, England, June 10, 2025.

6. "The Abundant University: Remaking Higher Education for a Digital World," Keynote Presentation, 2025 Teaching, Learning and Student Development Conference, Bristol Community College, Fall River, Massachusetts, May 2, 2025.
7. "Data Analytics and the Digital Delivery of Higher Education Courses," ISOM Department Research Seminar, HEC Paris, Paris, France, April 25, 2025.
8. "FutureU: Universities in the Digital Age," Keynote Speaker, University of Zurich, April 1, 2025.
9. "Back to the Future: Revisiting Judicial Site Blocking," Panel Moderator, Copyright Society Midwinter Meeting, New Orleans, Louisiana, January 31 – February 1, 2025.
10. "The Abundant University: Remaking Higher Education for a Digital World," iPeople Strategy Summit, July 1, 2024.
11. "In Pursuit of Equity: Redesigning Higher Education for a Digital World," Co-Organizer and Panelist, ASU + GSV Summit, San Diego, California, April 14-17, 2024.
12. "The Abundant University: Remaking Higher Education for a Digital World," 2024 Philip E. Frandson Award for Literature Recipient Lecture, Online and Professional Education Association annual conference, Boston, Massachusetts, March 26-28, 2024.
13. "The Abundant University: Remaking Higher Education for a Digital World," Lehigh University, User Designed Inquiry Symposium, March 20, 2024.
14. "Online Education from the University's Perspective," Learners First: Higher Education Online by Design, Duet Student Center, Boston, Massachusetts, February 28, 2024.
15. "The Abundant University: Remaking Higher Education for a Digital World," University of Maryland, R.H. Smith School of Business, October 30, 2023.
16. "The Abundant University: Remaking Higher Education for a Digital World," Plenary Keynote, NASPAA Conference, Pittsburgh, Pennsylvania, October 12, 2023.
17. "The Abundant University: Remaking Higher Education for a Digital World," George Washington University, Institute of Public Policy, Non-degree Credentials Research Network, October 5, 2023.
18. "The Abundant University: Remaking Higher Education for a Digital World," Georgetown University, October 5, 2023.
19. "The Abundant University: Remaking Higher Education for a Digital World," Talks @ Google, September 19, 2023. (https://www.youtube.com/watch?v=YYtkyEnUs88)
20. "What Does Management Theory Say About The Future of Higher Education?" Plenary Keynote, Academy of Management, Management Education and Development Division, Boston, Massachusetts, August 7, 2023.
21. "Digital Transformation and Mission-Based Leadership," Executive Session, Salesforce Education Summit, Dallas, Texas, April 11, 2023.
22. "Did Shutting Down Backpage and Craigslist Increase Violence Against Women?" National Center on Sexual Exploitation, Research Talk, March 3, 2023.
23. "The Abundant University: Remaking Higher Education for a Digital World," University of California at Irvine, Center for Digital Transformation, February 7, 2023.
24. "Student Debt & the Future of Higher Education," Panelist, Heinz College Webinar, November 18, 2022.
25. "The Abundant University: Remaking Higher Education for a Digital World," Gonzaga University, November 9, 2022.
26. "Can Higher Education Fix Itself?", Panelist, Carnegie Mellon University, Hall of States Building, September 27, 2022.
27. "Digital Transformation and Mission-Based Leadership," University of California at Irvine, Digital Leadership Speaker Series, September 20, 2022.

28. "The Impact of Site Blocking: Evidence from the UK," Hudson Institute Roundtable, Challenges and Opportunities in the Creative Industries: The Good, The Bad, and The Ugly, Washington DC, May 6, 2022.
29. "The Abundant University: Remaking Higher Education for a Digital World," Virtual Digital Economy Seminar, March 10, 2022.
30. "The Abundant University: Remaking Higher Education for a Digital World," MIS Workshop, University of British Columbia, Sauder School of Business, February 18, 2022.
31. "Technological Disruption in Arts, Entertainment, and Education," INFOcon 2021, October 20, 2021.
32. "Copyright Protection in the Digital Age," Panelist, Hudson Institute, September 24, 2021. (https://www.hudson.org/events/2009-virtual-event-copyright-protection-in-the-digital-age92021)
33. "Media Industry Winners, Losers, and Policy by 2025," Moderator, Technology Policy Institute, Aspen Forum, August 16, 2021.
34. "The Abundant University: Remaking Higher Education for a Digital World," Emory University, March 19, 2021.
35. "The Abundant University: Remaking Higher Education for a Digital World," Keynote, 38th Academic Chairpersons Conference, February 3, 2021.
36. "The Abundant University: Remaking Higher Education for a Digital World," McGill University Bensadoun School of Retail Management, Retail Thought Leader Seminar Series, November 13, 2020.
37. "The Abundant University: Remaking Higher Education for a Digital World," Boston University, Questrom School of Business, The Boston Digital Leadership Forum, October 23, 2020.
38. "The Abundant University: Remaking Higher Education for a Digital World," Michigan State University, Eli Broad College of Business, Accounting and Information Systems Seminar, October 16, 2020.
39. "The Abundant University: Remaking Higher Education for a Digital World," University of Texas at Austin, McCombs School of Business, Information Risk and Operations Management Seminar, October 9, 2020.
40. Intersect@CMU 2020: COVID-19 + Education Panel Discussion, Moderator, December 2, 2020.
41. "The Abundant University: Remaking Higher Education for a Digital World," University of Minnesota, Carlson School of Management, Information and Decision Sciences Seminar, September 25, 2020.
42. "The Abundant University: Remaking Higher Education for a Digital World," Harvard Business School, Digital Initiative Seminar Series, September 23, 2020.
43. "The Abundant University: Remaking Higher Education for a Digital World," University of Southern California, Marshall School of Business, Data Sciences and Operations Seminar Series, September 18, 2020.
44. "Copyright Law in Foreign Jurisdictions: How are other countries handling digital piracy?" Testimony before the Senate Judiciary Committee, Subcommittee on Intellectual Property, March 10, 2020. (https://www.judiciary.senate.gov/meetings/copyright-law-in-foreign-jurisdictions-how-are-other-countries-handling-digital-piracy)
45. "The Future of Creativity," CMU Alumni Association Event, Los Angeles, California, January 30, 2020.
46. "Big Data and the Future of Education," University of Pittsburgh, School Superintendent's Conference, Pittsburgh, Pennsylvania, April 12, 2020.
47. "Digital Piracy: Industry Harm, Consumer Harm, and Law Enforcement Effectiveness," Keynote Address, Digital Piracy Summit, *National Intellectual Property Rights Coordination Center*, Washington, D.C., December 13, 2019.
48. "The Fight Against Online Sex Abuse and Sex Trafficking," Plenary Keynote, 2019 Conference on Artificial Intelligence, Machine Learning, and Business Analytics, Temple University, Philadelphia, Pennsylvania, December 12, 2019.

49. "Breaking Through the Clutter: Capturing Attention in a Demand Economy," Panelist, Entertainment Analytics Conference, Marina Del Rey, California, August 1, 2019.
50. "What is the Future of Entertainment? Streaming Innovation: New Outlets, New Threats," Panelist, Technology Policy Institute, Aspen Forum, August 19, 2019.
51. "Big Data and the Future of Entertainment," Sony Music Nashville, Leadership Offsite Conference, Nashville, Tennessee, December 13, 2018.
52. "Streaming, Sharing, Stealing: Big Data and the Future of Entertainment," Turner Broadcasting, Atlanta, Georgia, November 28, 2018.
53. "Big Data and the Future of Entertainment," Sony Music Global Managing Directors Conference, New York, September 14, 2018.
54. Keynote Talk, "Big Data and the Future of Entertainment," Fifth Korea Cultural Contents Forum, September 19, 2018.
55. Discussant, "Streaming Video: Meet the Pirates," Sarah Oh, Scott Wallsten, Technology Policy Institute, Aspen Forum, Aspen, Colorado, August 21, 2018.
56. "Trust in Storytelling: Can Content Creators Ever Win?" Panelist, Society of Motion Picture and Television Engineers, Entertainment Technology @ 2018 Conference, Sunnyvale, California, June 13, 2018.
57. "The Impact of Piracy Notice Sending on Consumer Behavior for Entertainment: Evidence from a Randomized Field Experiment in the UK," Facebook Tech Talk, Palo Alto, CA, May 11, 2018.
58. "The Economics of Entertainment Digitization," NBER Digitization Tutorial, Stanford University, Palo Alto, California, February 28-March 1, 2018.
59. "The Economics of Intellectual Property and Consumer Behavior," Loyola Law School IP and Information Law Speaker Series, Los Angeles California, February 26, 2018.
60. "Piracy, Anti-Piracy and Consumer Behavior," Recording Industry Association of America, Board Retreat, November 1, 2017.
61. "Data Analytics and Consumer Behavior," ComcastLabs, PHLAI: Machine Learning Conference, Business Intelligence Keynote, Philadelphia, Pennsylvania, August 15, 2017.
62. "Big Data and the Future of Entertainment," Future of Technology Conference, Yale University Law School, New Haven, Connecticut, July 28 and August 5, 2017.
63. "Anti-Piracy and Consumer Behavior: What We Know So Far," Microsoft Media and Entertainment Day, New York, New York, July 25, 2017.
64. "Anti-Piracy and Consumer Behavior: What We Know So Far," Center for the Protection of Intellectual Property, Fourth Annual Summer Institute, Beaver Creek, Colorado, July 11-13, 2017.
65. "Is Big Data Killing Creativity?" Carnegie Mellon University 3 Big Ideas, Microsoft Impact Hub, Seattle, Washington, June 28, 2017.
66. "Digital Transformation and the Entertainment Industry," IT Teaching Workshop: Core Track, University of California at Irvine, May 20, 2017.
67. "Bumpy Seas: Leveraging Disruption in the Video Market," Panel Discussion, American Cable Association 24th Annual Summit, Washington, D.C., March 28, 2017.
68. "The Future of Work: Technological Innovation, Economic Disruption, and Human Dignity." Ohio State University Center for Ethics and Human Values, Columbus Ohio, March 7, 2017.
69. "Piracy and Film: 5 Myths and the Truth," Keynote Address, Film & TV Näringsdagen, Stockholm, Sweden, February 8, 2017.
70. "Big Data, Content Bubbles, and the Future of Entertainment," Redburn Media Conference, London, UK, February 1, 2017.

71. "Big Data and the Future of Entertainment," Boston Consulting Group, New York, New York, January 24, 2017.
72. "Technology, Copyright, and the Creative Industry," Copyright and Technology Conference, New York, New York, January 24, 2017.
73. "Big Data and the Future of Entertainment," NBC Universal, Los Angeles, California, January 20, 2017.
74. "Big Data and the Future of Entertainment," Amazon Studios, Los Angeles, California, January 18, 2017.
75. "Streaming, Sharing, Stealing: Big Data and the Future of Entertainment," Gary's Book Club, Consumer Electronics Show, Las Vegas, Nevada, January 6, 2017.
76. "IT and Strategy: Riding the Waves of Disruption," Evanta CIO Executive Summit, Pittsburgh, Pennsylvania, December 7, 2016.
77. "Streaming, Sharing, Stealing: Big Data and the Future of Entertainment," Live Talks LA, Los Angeles, California, October 20, 2016.
78. "Streaming, Sharing, Stealing: Big Data and the Future of Entertainment," Keynote, Hollywood IT Society Fall Conference, Los Angeles, California, October 19, 2016.
79. "Big Data and the Future of Entertainment," Tech Talk, Walt Disney Studios, Burbank, California, October 17, 2016.
80. "Streaming, Sharing, Stealing: Big Data and the Future of Entertainment," Authors@Google Talk, Mountain View, California, September 21, 2016.
81. "Is Big Data Killing Creativity?" TEDxHarvard Talk, Cambridge, Massachusetts, September 18, 2016.
82. "The Future of Notice and Takedown: What's Next?" Panel Moderator, MONDO NYC, Kimmel Center, Rosenthal Pavilion, New York City, September 15, 2016.
83. "Music Licensing: Ideas for Reform," Panelist, Technology Policy Institute, Aspen Forum, Aspen, Colorado, August 22, 2016.
84. "The Netflix Effect: How Technology is Changing the Face of Entertainment," Salesforce Rincon Center, San Francisco, California, June 9, 2016.
85. "Big Data and The Future of Entertainment," Three Big Ideas from Carnegie Mellon University, LinkedIn, Sunnyvale, California, June 8, 2016.
86. "Streaming, Sharing, Stealing: Big Data and the Future of Entertainment," Sony Pictures Entertainment, June 7, 2016.
87. "Customer Data and the Future of Entertainment," Cable Academy 2016, Broadband Cable Association of Pennsylvania, Harrisburg, Pennsylvania, April 20, 2016.
88. "Do Search Engines Influence Media Piracy? Evidence from a Randomized Field Study," New York University, Stern School of Business, Marketing Seminar Series, February 2, 2016.
89. "Piracy and Film: 5 Myths and the Truth," Data Keynote Address, Sundance Film Festival, Artist Services Workshop, Park City, Utah, January 25, 2016.
90. "Carrots and Sticks: Empirical Evidence on Strategies for Competing with Piracy," University of Arizona, Eller College of Management, MIS Speaker's Series, November 6, 2015.
91. "Creative Destruction in the Creative Industries: How Technology is Changing Content Business Models," Panelist, Technology Policy Institute Aspen Forum, August 18, 2015. (C-SPAN coverage: http://www.c-span.org/video/?327626-4/discussion-technology-creative-industries.)
92. "Music Licensing: Moving to the Digital Era," Panel Moderator, Technology Policy Institute Aspen Forum, August 17, 2015.
93. "Copyright Protection: Government vs. Voluntary Arrangements," Panel Moderator, Technology Policy Institute Aspen Forum, August 17-19, 2014.

94. "The Evolving Media Landscape: What do the Data Show?" Panel Discussion, Technology Policy Institute, Washington D.C., May 8, 2014. (http://www.techpolicyinstitute.org/events/show/115.html)

95. "Education, Enforcement, and the Economics of Piracy and Counterfeiting," Panelist, Congressional International Anti-Piracy Caucus, Rayburn House Office Building, Washington, D.C., April 28, 2014.

96. "Do Search Engines Influence Media Piracy? Evidence from a Randomized Field Study," University of California and San Diego, Rady School of Management, Innovation, Technology and Operations Seminar Series, La Jolla, California, March 14, 2014.

97. "Gone in 60 Seconds: The Impact of the Megaupload Shutdown on Movie Sales," MIT Initiative on the Digital Economy Seminar, Center for Digital Business, MIT Sloan School, Cambridge, MA, November 6, 2013.

98. "Measuring the Impact of Piracy and the Effectiveness of Anti-Piracy Enforcement," Fourth Anti-Piracy and Content Protection Summit, Los Angeles, California, June 26, 2013.

99. "Piracy, Regulation, and Digital Media," Office of the Intellectual Property Coordinator, Executive Office of the President, Eisenhower Executive Office Building, Washington, DC, April 22, 2013.

100. "Competing With Free: How Digitization, Piracy, and Big Data Are Disrupting the Movie Industry," Computer Science Department Colloquium, Calvin College, Grand Rapids, Michigan, March 28, 2013.

101. "Gone in 60 Seconds: The Impact of the Megaupload Shutdown on Movie Sales," Operations and Information Management Research Seminar, The Wharton School, University of Pennsylvania, Philadelphia, Pennsylvania, March 19, 2013.

102. "Competing With Free: How Piracy Impacts Sales and Strategies to Fight It," Digital Book World Conference, New York, New York, January 15, 2013.

103. "The Economics of Copyright Enforcement in a Digital Age," Variety Content Protection Summit, Los Angeles, California, December 6, 2012.

104. Panelist, "Comparing International Anti-Piracy Strategies," National Association of Recording Merchandisers, Entertainment & Technology Law Conference Series, New York, New York, September 13, 2012.

105. Panelist, "Copyright and Piracy after SOPA/PIPA: Finding Common Ground," Technology Policy Institute, Aspen Forum, Aspen, Colorado, August 19-21, 2012.

106. "The Effect of Graduated Response Anti-Piracy Laws on Music Sales: Evidence from an Event Study in France," Research Seminar in Information Technology and Organizations: Economic Perspectives, Sloan School, Massachusetts Institute of Technology, Cambridge, MA, April 4, 2012.

107. Panelist, "The Meaning of Work, the Universe, and Everything: Humanist, Agnostic, and Christian Professors Discuss the Purpose of Work, Veritas Forum, Carnegie Mellon University, Pittsburgh, PA, February 25, 2012. (Video available here http://www.veritas.org/cmu)

108. Panelist, "Entertainment in the Cloud," Congressional Internet Caucus Advisory Committee, State of the Net Conference, Washington DC, January 18-19, 2012. (Video available here http://www.youtube.com/watch?v=aYzXhFet1K8)

109. "The Impact of Ebook Distribution on Print Sales: Analysis of a Natural Experiment," Information Technology and Management, Distinguished Lecture Series, Georgia Institute of Technology, College of Management, Atlanta, GA, January 13, 2012.

110. "Information Discovery and the Long Tail of Motion Picture Content." W.P. Carey School of Business, Arizona State University, Tempe, Arizona, April 22, 2011.

111. "Channels and Conflict: Measuring the Impact of Digital Distribution Channels on Demand for Physical and Pirated Content." Distinguished Speaker Seminar Series, Desautels Faculty of Management, McGill University, Montreal, Quebec, Canada, March 3, 2011.

112. "Marketing Challenges in the Presence of Digital Distribution Channels." The Thriving in the Digital Age Conference, Undergraduate Marketing Organization, American Marketing Association Regional Conference, Pittsburgh, PA, October 9, 2010.

113. "Channels and Conflict: Consumer Response to Digital Distribution Channels." Research Seminar, Yahoo, Mountain View, CA, August 16, 2010.

114. "Channels and Conflict: Consumer Response to Digital Distribution Channels." Tech Talk, Google, Mountain View, CA, August 16, 2010. (Video available from http://www.youtube.com/watch?v=Y4VsTm3TPj4)

115. "Using Natural Experiments to Identify Cross-Channel Substitution Patterns in Digital Media." Research Seminar, London Business School, London, UK, June 21, 2010.

116. "Competing with Free: The Impact of Digital Distribution Channels on Media Consumption." Center for Digital Business Research Seminar, MIT, Cambridge, Massachusetts, April 26, 2010.

117. "Converting Pirates without Cannibalizing Purchasers: The Impact of New Digital Distribution Channels on Internet Piracy." Applied Microeconomics Seminar, Cornell University, Ithaca, New York, March 17, 2010.

118. "Converting Pirates without Cannibalizing Purchasers: The Impact of New Digital Distribution Channels on Internet Piracy." Research Seminar, Department of Information, Risk, and Operations Management, McCombs School of Business, University of Texas at Austin, Austin, Texas, January 28, 2010.

119. "Converting Pirates without Cannibalizing Purchasers: The Impact of New Digital Distribution Channels on Internet Piracy." Research Seminar, Department of Management Information Systems, Fox School of Business, Temple University, Philadelphia, Pennsylvania, December 4, 2009.

120. "Competing With Free: Can Digital Distribution Reduce Piracy?" University of Southern California, Marshall School, Institute for Communication Technology Management, Los Angeles, California, November 20, 2009.

121. "Competing With Free: Can Digital Distribution Reduce Piracy?" BayTSP Online Trends and Insight Conference, Los Gatos, California, October 15, 2009.

122. "Converting Pirates without Cannibalizing Purchasers: The Impact of New Digital Distribution Channels on Internet Piracy." Research Seminar, Department of Decision, Operations, and Information Technology, Robert H. Smith School of Business, University of Maryland, College Park, Maryland, October 9, 2009.

123. "Converting Pirates without Cannibalizing Purchasers: The Impact of New Digital Distribution Channels on Internet Piracy." Research Seminar, Information Operations and Management Department, Marshall School of Business, University of Southern California, Los Angeles, California, July 10, 2009.

124. "A Discussion of 'Taller Profiles and/or Longer Tails,' by Mark McCabe and Christopher Snyder." *7th Annual ZEW Conference on the Economics of Information and Communications Technologies*, Mannheim, Germany, July 3-4, 2009.

125. "A Discussion of 'Intellectual Property Rights Enforcement in Imperfect Markets,' by Jiahua Che, Larry Qiu, and Wen Zhou." *International Industrial Organization Conference* (IIOC), Boston, Massachusetts, April 5, 2009.

126. "Preventing Piracy in a Multi-Platform World," Panelist, Third Annual Future Television Show Summit, New York, NY, January 21-22, 2009.

127. "Competing with Free: The Impact of Movie Broadcasts on DVD sales and Internet Piracy," Research Seminar, Carlson School of Management, University of Minnesota, Minneapolis, Minnesota, April 18, 2008.

128. "A Discussion of 'Estimating Menu Costs in Electronic Markets,' by Anindya Ghose and Bin Gu." *International Conference on Information Systems* (ICIS), Montreal, Quebec, Canada, December 9-12, 2007.

129. "A Discussion of 'Trust and Survival of Service Providers in an eMarket,' 'Servicing the Long Tail: Using Customer Relationship Management Techniques to Manage Service Center Employee Relationships,' 'An Empirical Analysis of Price, Quality, and Incumbency in Online Procurement Auctions.'" Services Research Session. Workshop on the Economics of Information Systems and Economics, Montreal, Quebec, Canada. December 8-9, 2007.

130. "Consumption in the Digital Age," Panelist, The Internet Entertainment Workshop, Motion Picture Association of America, Universal City, CA, September 20, 2007.

131. "Does the Economics of ICT Matter?" Invited Keynote Address, *The Economics of Information and Communications Technologies*, Sciences Economiques et Sociales, Ecole Nationale Superieure des Telecommunications, Paris, France, June 21-22, 2007.

132. "A Discussion of 'Advertising as a Signal in an Internet Auctions Market,' by Jose J. Canals-Cerda." *International Industrial Organization Conference* (IIOC), Savannah, GA, April 14-15, 2007.

133. "Competing with Free: The Impact of Movie Broadcasts on DVD Sales and Piracy," Research Colloquium, Department of Information Systems, The Paul Merage School of Business, University of California at Irvine, Irvine, CA, March 15, 2007.

134. "Competing with Free: The Impact of Movie Broadcasts on DVD Sales and Piracy," Research Seminar, Marketing and Information Systems Departments, College of Business, University of Illinois at Urbana-Champaign, Champaign, IL, March 9, 2007.

135. "Competing with Free: The Impact of Movie Broadcasts on DVD Sales and Piracy," Research Seminar, Department of Information, Risk, and Operations Management, McCombs School of Business, University of Texas at Austin, Austin, TX, February 9, 2007.

136. "A Discussion of Papers in the 'Long Tail' Program Track," *Workshop on Information Systems and Economics* (WISE), Chicago, IL, December 10, 2006.

137. "Competing with Free: The Impact of Movie Broadcasts on DVD Sales and Piracy," Thomas J. Burns Research Colloquium, Department of Accounting and Management Information Systems, Fisher College of Business, Ohio State University, Columbus, OH, November 10, 2006.

138. "Competing with Free: The Impact of Movie Broadcasts on DVD Sales and Piracy," Information Systems and Operations Management Faculty Research Seminar, School of Business, University of Washington, Seattle, Washington, October 20, 2006.

139. "Competing with Free: The Impact of Movie Broadcasts on DVD Sales and Piracy," Information Systems and Operations Management Faculty Research Seminar, University of Texas at Dallas, Dallas, Texas, September 15, 2006.

140. "A Discussion of 'Strategic Sales Management Guided by Economic Regimes,' by W. Ketter, J. Collins, M. Gini, A. Gupta and P. Schrater," *Second Annual Statistical Challenges in Electronic Commerce Research Symposium*, Carlson School of Management, University of Minnesota, Minneapolis, MN, May 22-23.

141. "Presentation of 'Digital Transformation' Course Themes and Pedagogy," IT Teaching Conference, Harvard Business School, May 5, 2006.

142. "Competing with Free: The Impact of Movie Broadcasts on DVD Sales and Piracy," MIT Research Seminar in IT and Organizations, Massachusetts Institute of Technology, Sloan School of Management, March 15, 2006.

143. "Competing with Free: The Impact of Movie Broadcasts on DVD Sales and Piracy," Management Information Systems Department, John and Cheryl Coffin Academic Speaker Series, Krannert School of Management, Purdue University, February 24, 2006.

144. "A Discussion of 'The Sound of Silence in Online Feedback: Estimating Trading Risks in the Presence of Reporting Bias' by Chrysanthos Dellarocas and Charles A. Wood," *Workshop on Information Systems and Economics* (WISE), December 10-11, 2005.

145. "A Discussion of 'Price-formats as Sources of Price Dispersion: A Study of Online and Offline Prices in the Domestic US Airline Market' by Ramnath K. Chellappa, Raymond G. Sin, and S. Siddarth," *Workshop on Information Systems and Economics* (WISE), December 10-11, 2005.
146. "Internet Exchanges for Used Books: Welfare Implications and Policy Issues," Information Systems Department Seminar, Michigan State University, Eli Broad Graduate School of Management, October 7, 2005.
147. "A Discussion of 'Partial Licensing of Product Innovations'," *Economics of Digital Business Models*, Paris, France, June 17-18, 2005.
148. "The Economics of Peer-to-Peer Networks: Analysis and Implications for Regulation," Presentation to Commissioner Pamela Jones Harbour and Staff, Federal Trade Commission, June 15, 2005.
149. "Regulation and Design of Peer-to-Peer Networks." Research Seminar. Federal Trade Commission (FTC), Washington, DC, May 20, 2005.
150. "A Discussion of 'Vettes and Lemons on eBay' by Christopher Adams, Laura Hosken, and Peter Newberry." *International Industrial Organization Conference* (IIOC), Atlanta, GA, April 8-9, 2005.
151. "The Future of Peer-to-Peer Technology: Effects on Efficiency and Competition," Panelist, Panel on Peer-to-Peer File Sharing Technology: Consumer Protection and Competition Issues, Federal Trade Commission (FTC), Washington, D.C., December 15, 2004.
152. "A Discussion of 'On the Formation of Peer-to-Peer Networks: Self-Organized Sharing, Groups, and Links'," *International Conference on Information Systems* (ICIS), Washington, DC, December 12-15, 2004.
153. "A Discussion of 'Product Information Availability in the Internet: Implications for the Structure of Markets with Differentiated Products'," *Workshop on Information Systems and Economics* (WISE), College Park, MD, December 11, 2004.
154. "Internet Exchanges for Used Books: Welfare Implications and Policy Issues," Economics Department Seminar, Indiana University, Kelly School of Business, December 10, 2004.
155. "Intelligent Club Management in Peer-to-Peer Music Sharing Networks," Information Systems Department Seminar, University of Connecticut, Storrs, CT, November 5, 2004.
156. "Intelligent Club Management in Peer-to-Peer Music Sharing Networks," Information Systems Department Seminar, Stern School of Management, New York University, September 9, 2004.
157. "Search Costs in Electronic Markets: Research Questions and Analysis," Research Seminar: Information Technology and Organizations, MIT Sloan School of Management, February 19, 2004.
158. "Search and Product Differentiation at an Internet Shopbot," Economics Department Seminar, University of Delaware, Newark, DE, October 28, 2003.
159. "Consumer Surplus in the Digital Economy: Estimating the Value of Increased Product Variety," Information Systems Seminar, University of California at Irvine, Irvine, CA, May 9, 2003.
160. "Consumer Surplus in the Digital Economy: Estimating the Value of Increased Product Variety," Department of Economics, University of Arizona, Tucson, AZ, May 5, 2003.
161. "An Empirical Analysis of Network Externalities in P2P Music-Sharing Networks," Laboratory for Telecommunications Science Seminar, University of Maryland Institute for Advanced Computer Studies, University of Maryland, College Park, MD, November 21, 2002.
162. "Consumer Surplus in the Digital Economy: Estimating the Value of Increased Product Variety," Information Technology Seminar, University of Maryland, College Park, MD, November 20, 2002.
163. "Consumer Surplus in the Digital Economy: Estimating the Value of Increased Product Variety," Information Technology Seminar, University of Pittsburgh, Pittsburgh, PA, November 13, 2002.
164. "The Great Equalizer? The Role of Shopbots in Electronic Markets," Microeconomics Seminar, Stanford University, May 30, 2001.

165. "A Discussion of 'Follow the Leader? Strategic Pricing in Electronic Commerce' by Chuck Wood and Rob Kaufman," International Conference on Information Systems (ICIS), Brisbane, Australia, December 11, 2000.
166. "The Great Equalizer? The Role of Shopbots in Electronic Markets," Economics, Law, and Organizations Seminar, University of Chicago, Chicago, IL, October 19, 2000.
167. "The Great Equalizer? The Role of Shopbots in Electronic Markets," National Bureau of Economic Research Program on Electronic Commerce, Cambridge, MA, July 22, 2000.
168. "The Great Equalizer? The Role of Shopbots in Electronic Markets," eBusiness@MIT Sponsor Research Seminar, Cambridge, MA, June 19, 2000.
169. "Information, Intermediaries, and the Nature of Electronic Commerce," Seminar to Executives from Tekes Corporation, Cambridge, MA, June 2, 2000.
170. "Structure and Competition in Electronic Markets," Seminar for Executives of CSK Corporation, Cambridge, MA, June 10, 2000.
171. "Information, Intermediaries, and the Nature of Electronic Commerce," Seminar to Executives from British Telecom Corporation, Cambridge, MA, May 24, 2000.
172. "The Great Equalizer? The Role of Shopbots in Electronic Markets," eBusiness@MIT Seminar, Cambridge, MA, May 10, 2000.
173. "Customer Behavior in Internet Markets," Seminar for Executives of British Telecom Corporation, Cambridge, MA, April 12, 2000.
174. "Frictionless Commerce? An Exploratory Analysis of Internet Pricing Behavior," Productivity Workshop at the National Bureau of Economic Research, Cambridge, MA, March 17, 2000.
175. "The Great Equalizer? The Role of Shopbots in Electronic Markets," Job Talk Presentation, The Wharton School, University of Pennsylvania; Boston University; Stern School of Business, New York University; H. John Heinz III School of Public Policy and Management, Carnegie Mellon University; The University of Michigan; Graduate School of Business, Stanford University; University of Texas at Austin; University of Maryland; Indiana University, January-March, 2000.
176. "Internet Price Intermediaries and Consumer Choice Behavior," MIT Economics Department, Industrial Organization Seminar, Cambridge, MA, October 23, 1999.
177. "Frictionless Commerce? A Comparison of Internet and Conventional Retailers," Program on Electronic Commerce and Marketing Seminar, Cambridge, MA, May 7, 1999.
178. "Understanding Electronic Commerce," Seminar to Executives from Tekes Corporation, Cambridge, MA, March 22, 1999.
179. "Understanding Electronic Commerce," Seminar to Executives from Goodyear Corporation, Cambridge, MA, March 12, 1999.
180. "Frictionless Commerce? A Comparison of Internet and Conventional Retailers," Charles River Information Technology Group, Cambridge, MA, January 25, 1999.
181. "Electronic Commerce and Retail Competition on the Internet," Alfred A. Berg Fund Presentation, Cambridge, MA, September 17, 1998.

EDITORIAL BOARD MEMBERSHIPS

Senior Editor, Information Systems Research, 2009-2014.

Associate Editor, *MIS Quarterly*, 2008-2010.

Associate Editor, *Management Science,* 2005-2010.

Associate Editor, *Information Systems Research*, 2003-2006.

Associate Editor, *Information Systems Research*, Special Issue on Digital Systems and Competition, 2008.

Editorial Board, *Decision Support Systems*, 2003-Present.

Editorial Board, I/S: A Journal of Law and Policy for the Information Society, 2004-2013.

Associate Editor, *International Conference on Information Systems*, Web-based Information Systems and Applications Track, 2007

Ad Hoc Associate Editor, *Management Science*, 2004-2005.

Associate Editor, *International Conference on Information Systems*, Business Models and Economics Track, 2002.

PROFESSIONAL MEMBERSHIP AND ACTIVITIES

Co-Director, Initiative for Teaching and Education Analytics (iTEA), 2023-Present.

Co-Director, Initiative for Digital Entertainment Analytics (IDEA), 2012-Present.

Senior Scholar, The IP Policy Institute, University of Akron School of Law, 2025-Present.

Advisory Council, Institute for Informatics and Applied Technology, Gonzaga University, 2024-Present.

Academic Advisory Board, Copyright Alliance, 2024-Present.

INFORMS Information Systems Society, 2024-Present.

Adjunct Senior Fellow, Technology Policy Institute, 2013-Present.

Co-Director, iLab Center for Digital Media Research at Carnegie Mellon, 2008-2012.

Research Associate, Center for Marketing Technology and Information, Tepper School of Business, Carnegie Mellon University, 2010-Present.

Program Co-Chair, Workshop on Information Systems and Economics (WISE), December 15-16, 2012.

Participant, The National Academies Board on Science Technology and Economic Policy, Workshop on the Economics Impact of Copyright, June 9, 2011.

Faculty Mentor, 2010 Doctoral Consortium, International Conference on Information Systems, St. Louis, Missouri, December 9-10, 2010.

Session Chair, Social Media, Workshop on Information Systems and Economics, St. Louis, Missouri, December 12, 2010.

NSF Panel Participant, September 2009.

Session Chair, Online Markets, Seventh ZEW Conference on the Economics of Information and Communication Technologies, July 3-4, 2009.

Program Co-Chair, Fifth Symposium on Statistical Challenges in eCommerce Research (SCECR'09), Pittsburgh, May 10-11, 2009.

Session Chair, User Generated Content, *Fourth Symposium on Statistical Challenges in eCommerce Research* (SCECR'08), New York, May 18-19, 2008.

Co-Chair, Social Network Analysis in IS Research Minitrack, *The 2008 Americas Conference on Information Systems (AMCIS),* Toronto, Canada, August 14-17, 2008.

Session Chair, Information Systems and Security, *INFORMS Annual Meeting*, Seattle, Washington, November 4-7, 2007.

Co-Chair, The Peer-to-Peer Paradigm Minitrack, *The 2007 Americas Conference on Information Systems (AMCIS),* Keystone, Colorado, August 9-12, 2007.

Session Chair, Digital and Media Piracy Track, *International Industrial Organization Conference* (IIOC), Savannah, GA, April 14-15, 2007.

Program Co-Chair, Workshop on Information Systems and Economics (WISE), December 8-9, 2006.

Chair, Piracy and Copyright Issues in Markets for Information Goods, Information Systems Society Cluster, *INFORMS Annual Meeting*, Pittsburgh, PA, November 5-8, 2006.

Co-Chair, The Peer-to-Peer Paradigm Minitrack, *The 2006 Americas Conference on Information Systems (AMCIS),* Acapulco, Mexico, August 4-6, 2006.

Participant, Information Technology Case Teaching Workshop, Harvard Business School, Boston, MA, May 5, 2006.

Co-Chair, The Economics of Peer-to-Peer Networks Minitrack, *The 2005 Americas Conference on Information Systems (AMCIS),* Omaha, Nebraska, August 11-15, 2005.

Advisory Board, SSRN Information Systems and Economics Abstracting Journal, 2004-Present.

Advisory Board, Institute for the Study of Information Technology and Society, H. John Heinz III School of Public Policy and Management, Carnegie Mellon University, 2001-Present.

Advisory Board, Electronic Commerce Research Forum, eBusiness@MIT, 2000-Present.

Session Chair, Online Consumer Behavior I, *Workshop on Information Systems and Economics (WISE),* College Park, Maryland, December 11, 2004.

Participant, Information Technology Case Teaching Workshop, Center for Electronic Business and Commerce (CEBC), Stanford University, Palo Alto, CA, March 19, 2004.

Program Committee, Workshop on the Economics of Peer-to-Peer Systems, Berkeley, CA, June 2003.

Session Chair, Incentives in Peer-to-Peer Networks, *Workshop on the Economics of Peer-to-Peer Systems,* Berkeley, CA, June 2003.

Participant, Harvard Business School, Case Method Teaching Seminar, March 2002.

Discussant, *International Conference on Information Systems,* Brisbane, Australia, December 11, 2000.

NSF Panel Participant, November 2000.

Session Chair, Internet Economics II - Electronic Commerce, *Computing in Economics and Finance Conference,* June 1999.

Co-Editor, Electronic Commerce Research Forum, 1999-2000.

Member: Association for Information Systems, American Economics Association, American Marketing Association, INFORMS.

Referee: Management Science, Information Systems Research, MIS Quarterly, Journal of Management Information Systems, Journal of Political Economy, Journal of Industrial Economics, Journal of Business, Journal of Public Policy and Marketing, Journal of the Academy of Marketing Science, Journal of Interactive Marketing, Information Economics and Policy, International Conference on Information Systems, INFORMS Computer Society, California Management Review, Journal of Economic Surveys, The Electronic Commerce Research Journal, B.E. Journals in Economic Analysis and Policy, Empirical Economics, International Review of Economics and Finance, Eastern Economic Journal, Economic Modeling, Information Technology and Management, Austrian Science Fund, Omega the International Journal of Management Science, Hawaii International Conference on Information System Sciences.

DOCTORAL STUDENT COMMITTEES

Yi-Yun Chu, "AI-Driven Trust and Credentialing across Digital Social Domains."

Helen Zeng, "Sound of Freedom Trilogy: Responding to the Rise in Human Sex Trafficking Facilitated by Digital Platforms," Graduated 2024. (University of California at Davis).

Xiyang Hu, "Empowering High-Stakes Applications Through Human-Centered Machine Learning," Heinz College, School of Information Systems and Management, Carnegie Mellon University. Graduated 2024 (Arizona State University, W.P. Carey School of Business).

Yi Zhang, "Three Essays on the Economics of New Channel Adoptions in the Entertainment Industry," Heinz College, School of Information Systems and Management, Carnegie Mellon University. Graduated 2022 (Columbia University, School of Engineering and Applied Science).

Yangfan Liang, "Three Essays on Consumer Behavior in Technology-Enabled Markets," Heinz College, School of Information Systems and Management, Carnegie Mellon University. Dissertation Chair, Graduated 2022 (Amazon).

Mi Zhou, "Essays on Consumer Behavior in Technology-Enabled Markets," Heinz College, School of Information Systems and Management, Carnegie Mellon University. Dissertation Chair, Graduated 2020 (University of British Columbia, Sauder School of Business).

Uttara Ananthakrishnan, "Essays on Managing Content on Digital Platforms," Heinz College, School of Information Systems and Management, Carnegie Mellon University. Dissertation Co-Chair, Graduated 2018 (University of Washington, Foster School of Business).

Filipa Reis, "Leveraging Upon Large Scale Media and Communications Datasets for Socio-Economic and Policy Analysis," Heinz College, School of Information Systems and Management, Carnegie Mellon University. Graduated 2018 (Universidade Católica, Lisbon).

Jing Gong, "Essays on Technology-Mediated Two-Sided Markets," Heinz College, School of Information Systems and Management, Carnegie Mellon University. Dissertation Chair, Graduated 2016 (Temple University).

Zia Hydari, "Essays on Health Information Technologies," Tepper School of Business, Carnegie Mellon University. Graduated 2014 (University of Pittsburgh, Katz School of Business).

Daegon Cho, "Essays on Information Technology and Market Dynamics: An Analysis of Media, Mobile and Platform Competition," Heinz College, School of Information Systems and Management, Carnegie Mellon University. Graduated 2013 (Pohan University of Science and Technology).

Rajiv Garg, "Essays on Information Economy: An Analysis of Social, Digital, and Mobile Platforms," Heinz College, School of Information Systems and Management, Carnegie Mellon University. Graduated 2013 (University of Texas at Austin).

Yan Huang, "Essays on the Economics of Crowdsourcing and Enterprise Social Media," Heinz College, School of Information Systems and Management, Carnegie Mellon University. Graduated May 2013 (University of Michigan).

Angela Newell, "The Democratic Information Architecture: Government As Nexus." Johnson School of Public Affairs, University of Texas at Austin, Graduated 2011.

Anuj Kumar, "Essays on Technology Enabled Multi-channel Operations," Heinz College, School of Information Systems and Management, Carnegie Mellon University, Graduated 2011 (Warrington College of Business Administration, University of Florida).

Alexandre Mateus, "Copyright Violation on the Internet: Extend and Approaches to Detection and Deterrence," Engineering and Public Policy, Carnegie Mellon University and Instituto Superior Técnico, Lisbon, Portugal, Graduated 2011.

Ashish Agarwal, "Essays on Economics of Technology Markets," Tepper School of Business, Carnegie Mellon University. Graduated 2009 (University of Texas at Austin).

Zhechao (Charles) Liu, "Winners-Take-Some: The Impact of Conversion Technologies on Network Effects in Digital Goods Markets," Katz School of Business, University of Pittsburgh. Graduated 2008 (University of Texas at San Antonio).

Zhulei Tang, "Essays on the Analysis and Design of Efficient Electronic Marketplaces," Dissertation Chair, Tepper School of Business, Carnegie Mellon University. Graduated 2005 (Krannert School of Management, Purdue University).

Anindya Ghose, "The Strategic Impact of Internet Institutions and Secondary Electronic Markets on Firm Performance, Market Structure and Social Welfare: An Analytical and Empirical Framework," Graduate School of Industrial Administration, Carnegie Mellon University. Graduated 2004 (Stern School of Business, New York University).

Neveen Farag Awad, "Bringing the Corner-Store Online: The Challenges and Promises of Online Customer Service," University of Michigan Business School. Graduated 2004 (Wayne State University).

Atip Asvanund, "Peer-to-Peer Networks: User Behavior, Network Effects, and Protocol Extensions," Heinz School, Carnegie Mellon University. Graduated 2004 (TA Orange, Thailand).

Kartik Hosanagar, "Three Essays on the Design of Intermediation Services on the Internet," Heinz School, Carnegie Mellon University. Graduated 2003 (The Wharton School, University of Pennsylvania).

Bonnie Brinton Anderson, "Analysis of Adoption and Usage of Software," Heinz School, Carnegie Mellon University. Graduated 2001 (Marriott School of Business, Brigham Young University).

SERVICE

Member, Dean Search Committee, Heinz College, 2024-Present.

Co-Chair, Heinz College Self-Study Committee, 2024.

Faculty Advisor, Media and Entertainment Club, Tepper School of Business, 2021-Present.

Faculty Chair, Information Systems Management Program, 2009-Present.

Member, Provost Search Advisory Committee, 2018.

Member, ISS Sandra A. Slaughter Early Career Award Committee, 2017, 2018.

Member, Carnegie Bosch Institute Research Steering Committee, 2018.

Faculty Sponsor, Media and Entertainment Club, Tepper School of Business, 2017.

Co-Chair, Undergraduate Information Systems Program Committee, 2016-17.

Chair, Dean Evaluation Committee, 2014.

Member, Office of Sponsored Programs / Office of Research Integrity and Compliance Advisory Committee, 2013-2014.

Member, University Libraries Advisory Committee, 2012-Present.

Selection Committee, William W. Cooper Doctoral Dissertation Award in Management Science, 2012.

Booth Judge, Carnegie Mellon Carnival, 2005, 2007, 2009, 2012, 2014.

Judge, Thompson-Reuters Case Competition, March 2012.

Chair, Business Intelligence and Data Analytics Academic Programs Committee, 2011.

Member, Ph.D. Committee, 2003, 2007, 2009-2013.

Member, Institute for the Management of Creative Enterprises Program Committee, 2008-Present.

Ryan Award Selection Committee 2010-2013.

Judge, ComScore Case Competition, March 2011.

Member, Australia Educational Programs Review Committee, 2010-Present.

Faculty Advisor, Student Edited Edition of International Association of Business Communications Newsletter, "Exploring the Benefits of Social Media for Business Development," edited by Emmanouil Kounelakis and Haris Krijestorac, December 2009.

Member, Information Systems Management Program Committee, 2002-2009.

Faculty Host, Heinz Alumni Reception, Pacific Palisades, California, July 12, 2009.

Member, Carnegie Mellon University Non-Tenure Promotion Committee, 2009-Present.

Faculty Advisor, MISM Team, International Case Challenge, 2008.

Member, Heinz College Dean Search Committee, 2008-2009.

Session Chair, "The Internet's 'Long Tail' — Implications of Increased Product Variety for Consumers, Producers, and Creative Artists," Heinz School Reunion, 2005.

Member, MISM Commencement Awards Committee, 2005.

Faculty Advisor, Master of Information Systems Management Program, 2001-2005.

Faculty Advisor, First Year PhD Students, 2002-2004.

Member, Faculty Recruiting Committee, 2002-2003.

Member, Master's Program Policy Committee, 2001-2002.

RESEARCH GRANTS AND AWARDS

Initiative for Digital Entertainment Analytics at Carnegie Mellon University (IDEA@cmu), unrestricted gift from the Motion Picture Association of America to analyze the impact of digitization on the motion picture industry, October 2012-Present.

Bill and Melinda Gates Foundation, "Enhancing Student Performance: through the Analysis of Educational Video Consumption Patterns," December 2024.

Charles Koch Foundation Postsecondary Education Research Award, "Higher Education In the Digital Age: A Program of Data-Driven Research and Evidence-Based Policy Recommendations," November 2020.

Block Center for Technology and Society, "Better Videos for Better Education: Improving the Quality of Video Resources for Learning Purposes," May 2019.

Google Research Award for "Promoting Movies in Digital Channels: Impact of Targeted Movie Promotion on Sales and Piracy in Digital Movie Markets" (with Rahul Telang), February 2014.

Google Research Award for "Broken Windows? The Future of International Distribution Windows in a Global Media Market" (with Rahul Telang), June 2011.

Google Research Award for "Estimating The Welfare Gain From Digitization of 'Out-Of-Print' Books" (with Rahul Telang), May 2011.

International Intellectual Property Institute and United States Patent and Trademark Office for "Statistical Analysis of the Impact of Camcording Piracy" (with Rahul Telang), April 2011.

Marketing Science Institute and Wharton Interactive Media Initiative Research Award for "Modeling Multichannel Customer Behavior," (with Anuj Kumar and Rahul Telang), June 2010.

Google WPP Marketing Research Award for "Channels and Conflict: Efficient Marketing Strategies for Digital Distribution Channels," (with Rahul Telang), February 2010.

Yahoo! Faculty Research and Engagement Gift for "Advertising Strategies for Social Networks," (with Nachi Sahoo), November 2009.

Center for the Analysis of Property Rights and Innovation (CAPRI) Research Grant for "The Impact of Digital Music Distribution on Physical Sales and Internet Piracy," (with Brett Danaher and Rahul Telang), March 2009.

Research Grant, Motion Pictures Laboratories Incorporated, "Analysis of Piracy in Online Secondary Markets," (with Rahul Telang), August 2007.

Summer Research Grant, Networks, Electronic Commerce, and Telecommunications (NET) Institute, "Standards Competition in the Presence of Conversion Technology: An Empirical Analysis of the Flash Memory Card Market" (with Charles Liu and Chris Kemerer), June 2007.

Center for the Analysis of Property Rights and Innovation (CAPRI) Research Grant for "Competing with Free: The Impact of Movie Broadcasts on DVD Sales and Internet Piracy," (with Rahul Telang), October 2006.

NSF CAREER Award, "Designing Efficient Information Exchanges: A Program for Research and Teaching." NSF Award Number IIS-0448516, $493,748, 2005-2010.

Summer Research Grant, Networks, Electronic Commerce, and Telecommunications (NET) Institute, "Incentives and Protocols for Self-Organizing Interest-Based Peer-to-Peer Networks," (with Rahul Telang), June 2004.

Amazon.com Research Grant, March 2003.

Marketing Science Institute, Research Award #4-1191, "The Profitability of Shopbot Design" (with Alan Montgomery), October 2002.

Carnegie Bosch Institute Faculty Development Grant, October 2001.

Berkman Faculty Development Award, November 2000.

ACADEMIC HONORS AND AWARDS

2025 MIT Press Alumni Book Award for "*The Abundant University: Remaking Higher Education for a Digital World*."

INFORMS ISS Distinguished Fellow Award ("to recognize individuals who have made outstanding intellectual contributions to the information systems discipline"), October, 2024.

INFORMS ISS Practical Impacts Award ("honors distinguished information systems academics who have demonstrated outstanding leadership and sustained impact on the industry"), October 2024.

2024 Phillip E. Frandson Award for Literature for "*The Abundant University: Remaking Higher Education for a Digital World*."

Best Paper Award, Psychology of Technology, The AAAI-21 Workshop on AI For Behavior Change held at the Thirty-Fifth AAAI Conference on Artificial Intelligence (AAAI-21) for "Influence via Ethos: On the Persuasive Power of Reputation in Deliberation Online" (with Emaad Manzoor, George Chen, and Dokyun Lee).

2018 Dick Wittink Award for the best paper published in *Quantitative Marketing and Economics* for "Super Returns to Super Bowl Ads?" (with Hal Varian and Seth Stephens-Davidowitz).

2017 Carol and Bruce Mallen Award for Lifetime Published Scholarly Contributions in the Economics of the Motion Pictures Industry.

Best Paper Nominee, 2015 International Conference on Information Systems, A Tangled Web: The Impact of Displaying Fraudulent Reviews on Product Search Engines," with Uttara Ananthakrishnan and Beibei Li.

National Academy of Engineering Frontiers of Engineering Symposium. One of 100 "emerging engineering leaders" selected by the National Academy of Engineering, 2009.

Best Teacher Award. Student-nominated award given at commencement to an instructor in the Master of Information Systems Management and Master of Science in Information Technology programs. Award winner: 2009, 2004.

Interfraternity and Panhellenic Role Model Award, Carnegie Mellon University, 2008.

Best Published Paper Award Runner-Up, Information Systems Research, "Internet Exchanges for Used Books: An Empirical Analysis of Product Cannibalization and Welfare Impact," with Anindya Ghose, and Rahul Telang, 2007.

Heinz Career Development Chair, Carnegie Mellon University, 2006-2009.

Best Paper Award Nominee, 2004 International Conference on Information Systems (ICIS), "Price Elasticities and Social Welfare in Secondary Electronic Markets," with Anindya Ghose and Rahul Telang.

Best Paper Award Runner-Up, The 37th Hawaii International Conference on System Sciences (HICSS-37), “The Virtual Commons: Why Free-Riding Can Be Tolerated in File Sharing Networks” (with Ramayya Krishnan, Zhulei Tang, and Rahul Telang), January 2004.

Best Paper Award Runner-Up, International Conference on Information Systems (ICIS), Barcelona, Spain, "An Empirical Analysis of Network Externalities in Peer-To-Peer Music Sharing Networks" (with Atip Asvanund, Karen Clay, and Ramayya Krishnan), December 2002.

National Society of Collegiate Scholars, Outstanding Faculty Award, April 2002.

Best Dissertation Award Finalist, International Conference on Information Systems (ICIS), December 2001.

Best Student Presentation, Workshop on Information Systems and Economics (WISE), December 1998.

DuWayne Peterson Fellowship, Massachusetts Institute of Technology, Sloan School, 1997-1999.

APPENDIX 2

EXPERT MATTERS

No	*Case*	*Date*	*Venue*
1	*In re Google Generative AI Copyright Litigation*, 5:23-cv-03440-EKL (N.D. Cal. 2023)	2023	Northern District of California
2	*Warner Records Inc, et al. v Altice USA Incw.*, 2:23-cv-00576-JRG-RSP (E.D.T.X. 2023)	2023	Eastern District of Texas
3	*Bartz v. Anthropic PBC*, 791 F. Supp. 3d 1038 (N.D. Cal. 2024)	2024	Northern District of California

TESTIMONY IN LAST 4 YEARS

Warner Records Inc, et al. v Altice USA Inc.	Declaration
Bartz et al. v. Anthropic PBC	Declaration
In re Google Generative AI Copyright Litigation	Declaration
United States Copyright Royalty Judges on behalf of Settling Devotional Claimants in the 2018-2021 distribution of cable royalty funds	Testimony
Too Big to Prosecute?: Examining the AI Industry's Mass Ingestion of Copyrighted Works for AI Training, Sen. Comm. on the Jud. (July 16, 2025)	Testimony

DISCOVERY, PLEADINGS, AND PRODUCED DOCUMENTS

Action Discovery, Pleadings
Decl. of Michael D. Smith (Nov 17, 2023), ECF No. 52
Decl. of Michael D. Smith (Feb 14, 2024), ECF No. 95
Declaration of Michael D Smith iso Plaintiffs' Motion for Preliminary Injunction (Aug 1, 2024), ECF No. 182
Declaration of Duff Berschback in Support of Plaintiffs' Motion for Preliminary Injunction (Aug 1, 2024), ECF No. 184
Declaration of Alisa Coleman in Support of Plaintiffs' Motion for Preliminary Injunction (Aug 1, 2024), ECF No. 185
Declaration of Kenton Draughon in Support of Plaintiffs' Motion for Preliminary Injunction (Aug 1, 2024), ECF No. 186

Declaration of David Kokakis in Support of Plaintiffs' Motion for Preliminary Injunction (Aug 1, 2024), ECF No. 187
Opposition to Preliminary Injunction Motion (Aug. 22, 2024), ECF No. 207
Declaration of Anthropic's Dr. Jared Kaplan (Aug 22, 2024), ECF No. 209
Reply Declaration of Michael D Smith iso Plaintiffs' Reply iso Motion for Preliminary Injunction (Sept 12, 2024), ECF 227
Order Re [328], [341], [345] (May 23, 2025), ECF 377
Expert Report of Josh Dennis (Dec. 19, 2025)
Expert Report of Shawn Shan (Dec. 19, 2025)
Expert Report of Ben Zhao (Dec. 19, 2025)

Deposition Transcripts and Exhibits
Alisa Coleman Deposition Transcript and Exhibits (October 29, 2025)
Benjamin Mann 30(b)(1) Deposition Transcript and Exhibits (November 20, 2025)
Daniela Amodei 30(b)(1) Deposition Transcript and Exhibits (November 12 2025)
David Kokakis Deposition Transcript and Exhibits (November 11, 2025)
Dawn Drain 30(b)(1) Deposition Transcript and Exhibits (November 12, 2025)
Deep Ganguli 30(b)(1) Deposition Transcript and Exhibits (November 6, 2025)
Devin Whittle 30(b)(6) Deposition Transcript and Exhibits (October 14, 2025)
Duff Berschback Deposition Transcript and Exhibits (October 10, 2025)
Jared Kaplan 30(b)(1) Deposition Transcript and Exhibits (November 21, 2025)
Will Pittenger Deposition Transcript and Exhibits (October 7, 2025)
Pranay Sangani 30(b)(1) Deposition Transcript and Exhibits (November 10, 2025)
Tom Turvey 30(b)(6) Deposition Transcript and Exhibits (November 5, 2025)

Bates-Numbered Documents
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ABKCO_0000000069
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ABKCO_0000000328
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ANTH_SAMPLE000063982

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Anthropic_0000228080
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UMPG_0000000366
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UMPG_0000023257
UMPG_0000023282
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