Andrew Paley

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Profile

I'm a researcher, designer, engineer, journalist and musician working at the intersection of AI, human-centered design, the reinvention of information access, and social progress as applied to a variety of spaces, including education, politics, law and healthcare. I've built and led teams at fast-growing startups, designed and defined applied AI systems that resulted in over a dozen patents, and written and given talks about how to think about the future of AI-empowered UX. I also explore various approaches to human-machine collaboration in pursuit of generative art.

Education

McCormick, Northwestern University / PhD in Computer Science
SEPTEMBER 2018 -CURRENT | Evanston, IL

Currently a PhD Candidate in Prof. Kristian Hammond's C3 Lab, with a research focus on the reinvention of the human-data interface through the synthesis of various modes of machine learning and symbolic representation for natural language processing, intent-driven data analysis, rich conversational system design, and mixed-modality response generation. Research project work includes:

Satyrn
FALL 2019 - PRESENT

Leading the design and development of a platform aimed at empowering non-technical users with the toolset necessary to drive data search and analysis without needing to write code or database queries. The UX pulls from the scaffolding of Jupyter notebooks, but the interaction mechanics are based in natural language – the "natural language notebook." And all analytics, query generators, API components and UX are abstracted away from the particulars of any given dataset, with new datasets being brought to the system through the configuration of a domain ontology.

Northwestern Open Access to Court Records Initiative
SPRING 2019 - PRESENT

Leading the development of the SCALES platform (implemented as one instance of Satyrn), a core component of an NSF-backed joint initiative involving computer and data scientists, legal scholars, journalists and policy experts aimed at building an "AI powered data platform that makes the details of the federal judiciary and insights into how it works available and accessible to every single person." More details here.

Mim
SUMMER 2019 - PRESENT

Architecting and co-developing a rich conversational system aimed at question-answering by a process of question decomposition, sub-answer collection (culling candidate answers from a host of corpora, such as relevant APIs, open-source knowledge graphs, and encyclopedia articles) and evaluation, answer recombination (with relevant analysis), and response generation.

The Advisor
SPRING 2019 - PRESENT

Architecting and co-developing a conversational agent aimed at meaningful interactions with students around internships, job opportunities, class selections, and events. The system develops a profile of each individual through their searches and selections, aiding with suggestions and guidance as new opportunities or classes become available or the system discovers near-perfect matches that meet most of the student's interests and criteria.

Pixie
WINTER 2020 - PRESENT

Designed and developed a platform for the exploration of the latent space of GANs, as well as the creation of "human directed" music visualizations culled from those explorations. Currently pursuing a roadmap of feature additions.

McCormick, Northwestern University / MS in Computer Science
MAY 2020 | Evanston, IL

Earned an MS in CS as a subcomponent of the PhD program.

Medill, Northwestern University / MS in Journalism
DECEMBER 2010 | Evanston, IL

Earned an MSJ on a Knight Foundation scholarship aimed at bringing students with design and development skills and an interest or background in journalism to the Medill graduate program. While at Medill, graduate work included development of the American Visualizer, an app aimed at making census data accessible and useful to journalists through dynamic visualization; analysis of the media environment and impacts on the healthcare debate during 2009; and a FOIA-based research project associated with piecing together a timeline of events surrounding United 93 on 9/11.

St. Michael's College / BA in Journalism and Media Studies
Colchester, VT

While earning a BA, designed, built and maintained the first online student publication and hosted a weekly radio show on the college station.

Professional Experience

Narrative Science | Chicago, IL

Director of Product Design
MARCH 2016 - AUGUST 2018

Led a team focusing on the conceptual, architectural and UX design of a next-generation Natural Language Generation platform based on ontological modeling, data analytics and additional concepts leading to a host of awarded or pending patents (noted below).

Lead Product Designer
MARCH 2014 - MARCH 2016

Led the design of an end-to-end platform for fully configurable NLG, inclusive of data ingestion and analysis, chart design and rendering, document creation and styling, and delivery mechanisms for integration with a host of external platforms.

Software Engineer
JANUARY 2011 - MARCH 2014

Co-defined and developed key components of a fully configurable, domain independent natural language generation system.

Rise Above Foundation / Board Member
2009 - 2013 | Worcester, MA

Served on the board of Rise Above Foundation, a nonprofit based in Massachusetts aimed at providing children in foster care with enriching activities, opportunities and experiences. In addition to board service, built the initial website as well as the web-based application and double-blind approval system, adhering to strict guidelines related to data security. To date, system has powered the application, review and approval process for thousands of grants for children in foster care in Massachusetts.

Freelance / Designer, Developer
SEPTEMBER 2009 - JANUARY 2011 | Chicago, IL

Freelance work while pursuing a master's degree in journalism at Northwestern University; included work for JW Player, OpenSky, Hospital Energy, Northwestern and other clients.

JW Player (formerly LongTail Video) / Lead Designer, Developer
MARCH 2008 - SEPTEMBER 2009 | New York, NY

Lead designer and frontend engineer at company specializing in creating tools for video publishing and monetization; company properties include popular open-source media player, the JW Player. Maintained the website and aspects of registration and invoice systems including design, A/B testing, and SEO of highly trafficked player download pages.

Musician / Songwriter, Producer, Performer

Primary songwriter, lead vocalist, and producer for an international touring band with four albums and two EPs released to date, as well as a solo artist with two albums. Songs have been aired on radio and music programming internationally, and have appeared in various films and television shows. Performed in 48 US States as well as roughly 30 countries to date, including Japan, Brazil, Germany, France, the UK, Greece, Hungary, Czechia, Ukraine, and Russia.

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Patents

Paley, et al. *Applied artificial intelligence technology for narrative generation based on a conditional outcome framework.* U.S. Patent No. 10,943,069. March 3, 2021.

Paley, et al. *Applied artificial intelligence technology for performing natural language generation (NLG) using composable communication goals and ontologies to generate narrative stories.* U.S. Patent No. 10,762,304. September 1, 2020.

Paley, et al. *Applied artificial intelligence technology for story outline formation using composable communication goals to support natural language generation (NLG).* U.S. Patent No. 10,755,053. August 25, 2020.

Paley, et al. *Applied artificial intelligence technology for ontology building to support natural language generation (NLG) using composable communication goals.* U.S. Patent No. 10,719,542. July 21, 2020.

Paley, et al. *Applied artificial intelligence technology for interactive story editing to support natural language generation (NLG).* U.S. Patent No. 10,713,442. July 14, 2020.

Paley, et al. *Applied artificial intelligence technology for narrative generation based on analysis communication goals.* U.S. Patent No. 10,699,079. June 30, 2020.

Paley, et al. *Applied artificial intelligence technology for determining and mapping data requirements for narrative stories to support natural language generation (NLG) using composable communication goals.* U.S. Patent No. 10,585,983. March 10, 2020.

Paley, et al. *Applied artificial intelligence technology for runtime computation of story outlines to support natural language generation (NLG).* U.S. Patent No. 10,572,606. February 25, 2020.

Paley, et al. *Method and system for configuring automatic generation of narratives from data.* U.S. Patent No. 10,185,477. January 22, 2019.

Birnbaum, et al. *Automatic generation of narratives from data using communication goals and narrative analytics* (patent set).
- U.S. Patent No. 10,755,042. August 25, 2020.
- U.S. Patent No. 9,977,773. May 22, 2018.
- U.S. Patent No. 9,720,899. August 1, 2017.
- U.S. Patent No. 9,697,492. July 4, 2017.

Hammond, et al. *Automatic generation of narratives from data using communication goals and narrative analytics.* U.S. Patent No. 9,576,009. February 21, 2017.

Selected Publications/ Presentations

- Paley, A., Li Zhao, A., Pack, H., Servantez, S., Adler, R. F., Sterbentz, M., Pah, A., Schwartz, D., Barrie, C., Einarsson, A., and Hammond, K. (2021). *From Data to Information: Automating Data Science to Explore the U.S. Court System.* In The 18th International Conference of Artificial Intelligence and Law (ICAIL 2021). (Peter Jackson Award for Best Innovative Application Paper)

- Innovation Leaders Panel, Merck Innovation Summit, Panel Member, October 2019

- Public Forum: Artificial Intelligence, Health, & Society at the Equity, Diversity, and Data Science in Genomics Workshop, University of Illinois/NHGRI, Panel Member, September 2019

- The Future of AI: Ethical Questions and Human-Centered Design, Chicago Product Strategy and Design meetup, Panel Member, March 2019

- "How to Design for the User and the Bot," VentureBeat, May 2017

- "AI and the Importance of Trust and Respect," VentureBeat, January 2017

- Jim Hayes Symposium panel member discussing the future of journalism, Cal Poly, October 2016

- Future of Design Panel, TechWeek Chicago, Panel Member, June 2016

- "What UX Designers Need to Know About Artificial Intelligence (UX for AI)", UXD Chicago, June 2016

Awards

2021: Peter Jackson Award for Best Innovative Application Paper at the 18th International Conference on AI and Law.

2011: Chicago Innovation Award Winner (team award) for the development of the original Authoring Engine/Platform at Narrative Science.

2010: Carnegie-Knight News21 Fellowship Recipient to study the changing demographics and cultural shifts throughout the United States.

2010: Knight-Batten Awards Notable Entry for the American Visualizer app (other Notable Entries included Google Labs, the Washington Post, Wired, NPR, the Wall Street Journal, and DocumentCloud).

2009: Recipient of Knight Foundation Scholarship based on design and development background (as the Knight Foundation explains it, the scholarship is intended to "create an academic program blending computer science and journalism" because "a democratic society in the digital age needs people who understand both journalism and technology"); earned MSJ at the Medill School of Journalism at Northwestern University.