Adam L. Berenzweig

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Interests, goals, and expertise.

I've spent most of my career building products around machine learning. I enjoy taking the latest research breakthroughs and figuring out how to apply them in useful, high-impact projects. I have broad knowledge of systems architecture, the product lifecycle, and machine learning.

Research and engineering expertise includes:

- Machine learning, information retrieval, recommender systems.
- Machine perception (speech and vision, auditory scene analysis).
- Neuromotor interfaces, HCI, UI/UX and interaction design.
- NLP, language models, linguistics.
- Knowledge graphs and reconciliation.
- Engineering large-scale distributed systems, RPC services and data workflow systems.
- Engineering and operations best practices, continuous deployment and testing.
- Engineering management.

CTRL-labs and Meta

In June 2016, I joined CTRL-labs, a neurotech startup building a practical neural interface, worn on the arm, that decodes the signals flowing from your brain to your hand. The goal was to be the primary input technology for the next personal computing platform – when your computer is worn on your body, such as eyeglasses.

As Director of R&D, my role was to ask "What is this thing good for?" I launched and led projects, steered the technical direction of the science and human-interactions teams, and contributed directly to core demos used for fund-raising and eventually our acquisition by Facebook/Meta.

At Meta, my focus was solving the text input problem, for the times you don't want to talk out loud to your computer. I started and led two big efforts, first around two-hand surface typing and then handwriting (appropriate for a one-handed product scenario). - The surface-typing project was reported as the emg2qwerty dataset, open-sourced in a NeurIPS 2024 data track paper. - The handwriting decoder was reported as one of the tasks in our group's foundational EMG paper, accepted in Nature (available in preprint on bioarxiv) and visible in the demo shown at ICASSP 2024 (below).

In early 2026, handwriting with the Neural Band launched for the Meta Ray-Ban Display.

Talks, press, and podcasts:

- Rethinking HCI with Neural Interfaces, QCON 2018
- Practical AI, The Changelog's AI podcast.
- Brain-Machine Interface Isn't Sci-fi Anymore, Steven Levy, Wired, September 2017.

- Facebook buys startup building neural monitoring armband, TechCrunch, September 2019.
- Handwriting is my new favorite way to text with the Meta Ray-Ban Display glasses, Engadget, Jan 2026.

Clarifai

In early 2014 I helped start Clarifai, a machine learning and image recognition company, with Matt Zeiler. I served as CTO from founding through 2016.

Accomplishments:

- Launched an image and video recognition service backed by deep convolutional neural networks running on GPUs.
- Launched a search and indexing service with visual search, auto-tagging, visual clustering, and combined visual/metadata query capabilities.
- Raised a series A, grew from zero to 30 employees and significant revenue.
- Launched Forevery, a consumer photo organization mobile app powered by Clarifai's API.

Some talks I've given about Clarifai and current trends in computing driven by machine learning:

- Databite 38: Deep learning, machine perception, and the future of memory.
- Stanford VLAB panel on deep learning.

Google

I was a software engineer at Google from 2003-2014. A brief overview of projects and accomplishments:

2010-2012 Music Recommendation for Google Play Music I was tech lead of the music recommendation team during the initial beta launch, and architected the recommendation service. I designed and helped build features and components such as:

- Instant Mix (content-based playlist generation). Covered here on the Google Research Blog.
- Personalized artist recommendations, using Samy Bengio and Jason Weston's wsabie embeddings for audio.
- Improved recommendations in the presence of a query, using Latent Collaborative Retrieval (with Jason Weston and Ron Weiss).
- Numerous engineering projects, including the recommendation signals data pipeline, the metadata service, and music metadata reconciliation for the Knowledge Graph.

2007-2008 Google News I led a team to build the first large-scale application of NLP to Google News, producing named entity annotations and using them in various ways:

- to improve search result ranking for certain news queries.
- to improve clustering of news articles into stories that evolve over time
- to extract authors from the byline

2009-2010

Realtime Search Realtime Search was the first project to provide search results (mostly from Twitter) that streamed in real-time on the Google search results page. I worked on the search infrastructure to support real-time streaming. The project won an OC (Organizing Committee) award.

2012-2013 Goggles / Visual Search / Google Glass I worked on Goggles, the first widely-used image recognition mobile app for consumers, during the transition from standalone app into Google Photos. I was also involved with some experiments to use recognition and computer vision in Google Glass, specifically for a timelapse life-logging system. Goggles was eventually as Google Lens.

2013 Colaboratory I helped steer a project to build a new document-based computing tool that unifies code with text and interactive visualization. I developed the product vision and hacked on early proof-of-concept demos, such as: an in-browser python kernel, two-way binding between data cells in the browser and in backend execution kernels, and interactive visualizations with editable javascript. The project was eventually launched as Google Colab.

2003-2013 Non-project accomplishments

- Started and organized the CSA (community-supported agriculture) program in NYC, a local farm share program. Grew to 80+ members in 3 years.
- Taught an internal training class (Life of a Query)
- Career mentoring

Earlier Professional Experience

2001, 2002 NEC Research Institute, Princeton NJ. I interned at NEC for two summers of my Ph.D., during the heydey when Vladimir Vapnik, Yann LeCunn, Steve Lawrence, and others there were doing pioneering work in machine learning and information retrieval. I worked with Brian Whitman on music information retrieval, a precursor to his company The Echo Nest (now part of Spotify) and my work for the Google Play Music service.

1997-2000 Lucent Technologies, Whippany NJ. Security Standards Architect, Wireless Networks.
I designed security architectures for wireless phone networks, and represented Lucent in industry standards bodies.

1999-2000 Learning In Progress, Inc., New York, NY. I co-founded an ed-tech company (we called it "e-learning" back then) with the mission of building better tools and games to teach computer programming and IT skills. We were about 10 years too soon.

Summers 1995, 1996 Hotjobs, New York, NY After I built a website as an intern for a small technical recruiting firm in NY, the CEO asked me if I could put some of their job listings from the database up on the website. The resulting site evolved into Hotjobs, one of the darlings of the first dot-com boom.

Education

2006 Ph.D., Electrical Engineering, Columbia University

- Dissertation: "Personalized music similarity metrics"

- Advisor: Daniel P.W. Ellis

2002 M.S., Electrical Engineering, Columbia University
1997 B.S., Computer Science, Yale University

Publications

See Google Scholar.

Non-professional

I engineered and programmed the software for Reflecting The Stars, a public art installation on the Hudson River, for Jon Morris of The Windmill Factory. Covered in Wired and The New York Times.

In a past life, I played and wrote music. I like to climb and surf, learn new languages, travel, and eat good food.