

Matthew Cooper, D.Sc.

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www.cohans.net/mlc/ · [LinkedIn](#) · [google scholar](#)

SUMMARY Machine learning scientist and engineer with deep experience designing and deploying applied machine learning, search, and recommendation systems across multiple modalities. I have 15 years of experience as a research scientist, producing over 70 professional publications and over 40 U.S. patents. I have eight years of experience as a staff+ machine learning engineer building and deploying production recommendation systems.

SKILLS

- Substantial rapid prototyping experience using python, scikit-learn, pandas, numpy, pytorch, huggingface, C/C++, Octave/MATLAB
- Experience with AWS: S3, Lambda, ECR, DynamoDB, ElasticSearch, Sagemaker, Redshift
- Experience with GCP: BigQuery, GCS, Cloud Functions, Vertex
- Experience with SQL, airflow, snowflake, prefect, dbt, docker, metaflow/outerbounds
- Experience leading research projects, collaborating within and across teams, mentoring research scientists, engineers, and interns

EXPERIENCE **CNN**, San Francisco, CA [additional details available](#)
Senior Staff Machine Learning Engineer 2025 - Present

- Currently, member of the machine learning and AI team concentrating on content recommendation services for the CNN home page and mobile apps (python, PyTorch, snowflake, transformers/huggingface, metaflow/outerbounds, AWS)

Mozilla, San Francisco, CA
Staff Software Engineer, Machine Learning & Recommendations 2018 - 2025

- Member of the machine learning team concentrating on both human in the loop and algorithmic content recommendation services for the [firefox new tab](#) with 8B monthly average impressions (python, lightgbm, BigQuery, snowflake, transformers/huggingface, metaflow/outerbounds, GCP)
 - Co-developed internal batch processes that increased recommendation volume 300% with 17% CTR lift YoY
 - Deployed bandit-based online ranking producing up to 10% lift in CTR
- Working in machine learning team at [pocket](#) (python, scikit-learn, metaflow, graphql, elasticsearch, airflow, AWS, SQL, gensim)
 - lead development of personalized recommendations for pocket home page
 - developed recommendation pipeline for explore pages with 20M monthly pageviews
 - developed personalized recommendations for our syndication efforts

FX Palo Alto Laboratory (FXPAL), Palo Alto, CA
FXPAL performed information technology research for [Fuji-Xerox, Co.](#)
Principal Research Scientist 2016 - 2018
Senior Research Scientist & Group Lead, Integrative Analytics 2012 - 2016
Senior Research Scientist 2004 - 2012
Research Scientist, 2000 - 2004

- Research on content-based multimedia analysis to facilitate media management and information retrieval. Provided applied machine learning design and development support lab-wide.
- Core member of development team for Talkminer lecture video search system with over 60,000 web-distributed lecture videos (C/C++, Python, docker)
- Developed and validated systems for large-scale video analysis and interactive video search in conjunction with the [TRECVID evaluation](#) (C/C++, Python)
- Member of Technical Assessment Panel for reviewing inventions and patent strategy
- Supervised and co-supervised graduate student interns

EXPERIENCE (cont.)

[additional details available](#)

NetCapita, Inc., Baltimore, MD

Software Engineer 1999 - 2000

- Research and development of low bandwidth internet videoconferencing software.
- Technology transferred to Animetrics, Inc., Jackson, NH. (C/C++, OpenGL)

Center for Imaging Science, Johns Hopkins University, Baltimore, MD

Research Assistant 1998 - 1999

Completed thesis research on information-theoretic analysis of generic object recognition. (MATLAB, C/C++, OpenGL)

Dept. of Electrical Engineering, Washington University, St. Louis, MO

Research Assistant 1996 - 1998, 1993-1994

Developed automated object recognition algorithms using infrared radar systems and an efficient representation of the radiant appearance of observed objects to achieve robustness to thermodynamic variability. (MATLAB, C/C++, OpenGL)

Programmer and Analyst 1994 - 1995

Washington University School of Medicine, Genome Sequencing Center

Developed and implemented image processing algorithms and software for four color electrophoretic DNA sequencing. Subsequent versions of the algorithms and software were used to sequence *C. elegans* and the human genome. (C programming)

EDUCATION [Washington University in St. Louis, St. Louis, MO](#)

D.Sc. Dept. of Electrical Engineering

M.S. Dept. of Electrical Engineering

Research Advisor: [Prof. Michael I. Miller](#)

Boeing-McDonnell Foundation Fellowship

Office of Naval Research AASERT Fellowship

[Washington University in St. Louis, St. Louis, MO](#)

B.S. Major: Electrical Engineering, Minor: Computer Science

State of Missouri Bright Flight Scholarship

School of Engineering and Applied Science Dean's Honorary Scholarship

[coursera.org](#)

Deep Learning Specialization by DeepLearning.AI on Coursera

DeepLearning.AI Natural Language Processing Specialization

DeepLearning.AI Generative AI with Large Language Models

PyTorch Ultimate 2024 by Packt on Coursera

completed 15+ online courses

[Certificate](#) earned 02/2018

[Certificate](#) earned 12/2020

[Certificate](#) earned 06/2023

[Certificate](#) earned 04/2025

HONORS [Distinguished Member, ACM](#)

[Senior Member, IEEE](#)

PUBLICATIONS Selected articles[complete list available](#)

D. Avrahami, M. Patel, Y. Yamaura, S. Kratz, and **M. Cooper**. Unobtrusive Activity Recognition and Position Estimation for Work Surfaces using RF-radar Sensing. *ACM Transactions on Interactive Intelligent Systems* **10**(1), 2019.

J. Zhao, C. Bhatt, **M. Cooper**, and D. Shamma. Flexible Learning with Semantic Visual Exploration and Sequence-Based Recommendation of MOOC Videos. *Proc. of the 2018 CHI Conference on Human Factors in Computing Systems*. Paper No.: 329 Pages 1-13, 2018.

M. Cooper, J. Biehl, G. Filby, S. Kratz. LoCo: Boosting for indoor location classification combining Wi-Fi and BLE. *Personal and Ubiquitous Computing*, 2016.

S. Carter, **M. Cooper**, L. Denoue, J. Doherty, V. Rugoobur. Supporting media bricoleurs. *ACM interactions*, 2014.

L. Denoue, **M. Cooper**, and S. Carter. Searching Live Meetings: “Show me the Action”. *Proc. of ACM Document Engineering (DocEng)* 2015.

M. Cooper. Clustering Geo-tagged Photographs using Dynamic Programming *Proc. ACM Multimedia*, p. 1025-1028, 2011.

J. Pickens, **M. Cooper**, and G. Golovchinsky. Reverted Indexing for Feedback and Expansion. *Proc. ACM Conf. on Information and Knowledge Management (CIKM)*, p. 1049-1058, 2010.

J. Adcock, **M. Cooper**, L. Denoue, H. Pirsiavash, and L. A. Rowe. TalkMiner: A Lecture Webcast Search Engine. *Proc. ACM Multimedia 2010*, p. 241-250, 2010.

M. Cooper, Image Categorization Combining Neighborhood Methods and Boosting, *Proc. ACM Multimedia 2009. Workshop on Large-Scale Multimedia Retrieval and Mining*.

M. Cooper, T. Liu, and E. Rieffel. Video Segmentation via Temporal Pattern Classification. *IEEE Transactions on Multimedia*, **9**(3):610-618, 2007.

M. Cooper, J. Foote, E. Pampalk, and G. Tzanetakis. Audio Visualization for Music Information Retrieval. *Computer Music Journal*, **30**(2):42–62, 2006.

M. Cooper, J. Foote, A. Girgensohn, and L. Wilcox. Temporal Event Clustering for Digital Photograph Collections. *ACM Trans. on Multimedia Computing, Communications, and Applications*, **1** (3):269–288, 2005.

M. Cooper and M. Miller. Information Measures for Object Recognition Accommodating Signature Variability. *IEEE Trans. on Information Theory*, **46**(5):1896–1907, 2000.

M. Cooper, D. Maffitt, J. Parsons, L. Hillier, and D. States. Lane Tracking Software for Four-color Fluorescence-based Electrophoretic Gel Images. *Genome Research*, **6**(11):1110-1117, 1996.

REFERENCES Available upon request.