F. Maxwell (Max) Harper

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Summary

Experienced data scientist with software engineering background and very strong research publication record. Highly functional collaborator and communicator that excels at deeply understanding complicated problems and clearly describing results to different stakeholders. Motivated builder that is passionate about quality software and machine learning best practices.

Education

University of Minnesota, Minneapolis, MN (2003 – 2009)
> M.S. and Ph.D., Computer Science

Carleton College, Northfield, MN (1994 – 1998)
> B.A., International Relations and Environmental Studies
> *Magna Cum Laude*

Professional Experience

Amazon, Seattle, WA (2019 – 2023)
> *Senior Applied Scientist (L6).* Developed machine learning models and analysis to improve the quality and trustworthiness of a key public-facing Amazon recommender system. Led science effort on a learning to rank algorithm (shipped Jan. 2023) that is projected in A/B testing to increase annual revenue by $200m U.S., and $150m worldwide. Led a project to detect offensive language through problem definition, analysis, modeling, and launch; improved on the previous system from estimated F1 of 0.47 to 0.84. Developed internal tools to identify and mitigate algorithmic bias, and to visualize recommender system rankings to support business decision-making. Co-chaired the 16th ACM Conference on Recommender Systems (RecSys 2022) and co-authored several research papers to raise Amazon's profile in the academic research community.

University of Minnesota, Minneapolis, MN (2012 – 2019)
> *Research Scientist.* Led research projects at the GroupLens Center for Social and Human-Centered Computing in the areas of recommender systems and social computing. Co-authored 27 research papers, primarily in the area of empirical recommender systems experiments. Served as lead software engineer for the MovieLens recommender system (`https://movielens.org`); managed the MovieLens team, code, user community, and datasets. Mentored graduate and undergraduate students in research and software development. Taught several iterations of "Developing the Interactive Web" (~50 students, 2 TAs) and a seminar on "Data Science Methods for Social Computing" (~10 students).

Code 42 Software, Minneapolis, MN (2011 – 2012)
> *Software Engineer.* Built server-side software for CrashPlan, a product with hundreds of thousands of users and many dozens of petabytes of backup data. Contributed to many efforts, with a focus on scalability and automated test coverage.

Blue Shift Software Laboratory, Minneapolis, MN (2009 – 2011)
> *Founder.* Founded a startup business with the broad goal of providing software that supports data-driven decision-making through the synthesis and visualization of textual data. Launched thinkmeter.com and eventburn.com, both hosted on Google App Engine.

Theophilus, Inc., New York, NY (50% time, 2009 – 2010)
Consulting Data Scientist. Built a recommendation pipeline for an online restaurant deal discovery application. Prototyped and evaluated experimental technologies for automated summarization and recommendation.

University of Minnesota (20% – 50% time, 2009 – 2010)
Post-Doctoral Associate. Coordinated research efforts between the GroupLens research group and researchers from the Department of Writing Studies. Developed machine learning techniques to classify the intent of users of social software. Contributed to a funded NSF grant to extend the group's work on question and answer Web sites. Mentored graduate students.

University of Minnesota (2004 – 2009)
Research Assistant. Led and participated in several research teams, with the overarching goal of learning and publishing about user behavior in online systems. Collaborated with computer scientists, economists, and psychologists. Conducted laboratory and field studies, collected and analyzed data sets, and developed novel algorithms and machine learning models.

Nokia Research Center, Palo Alto, CA (Summer 2007)
Research Intern. Built the software to drive a network of interactive touchscreen computers that recognize nearby users using Bluetooth signal processing. Investigated the impact on interpersonal relationships through observational analysis, surveys, and data analysis.

Early Career (1998 – 2003)
Software Engineer for Fair Isaac (data mining for credit scoring algorithms), AT&T Wireless (data warehousing applications), and OneSecure (web application development). *Systems Administrator Consultant (20% time)* for the Walker Art Center (administration of new media art installations).

Peer-Reviewed Publications

Co-author of more than 50 publications that have together been cited more than 9,000 times. Primary publication venues are computer science and human-computer interaction conferences, including RecSys and CHI. Full citation list: https://scholar.google.com/citations?user=y9kaCjcAAAAJ&hl=en

Primary research areas:

- recommender systems (applications and empirical studies)
- intelligent user interfaces
- human-computer interaction (user behavior, online communities)

Primary research methods:

- offline and online experimentation
- quantitative data analysis
- applied machine learning
- user and crowdsourcing studies

Professional Activities

Senior organizer and peer-reviewer of computer science conferences and journals:

- ACM Conference on Recommender Systems (RecSys): General Chair 2022, Senior Program Committee, 2019–present
- Amazon Machine Learning Conference (AMLC): Tutorials Chair, 2020–2021
- ACM Special Interest Group on Information Retrieval (SIGIR): Senior Program Committee, 2019–present
- ACM Transactions on Intelligent Interactive Systems (TIIS): Board of Distinguished Reviewers, 2017–present
- ACM Transactions on Recommender Systems (TORS) Distinguished Reviewer: 2021–present