Naveen Raman

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Education

Carnegie Mellon University — Pittsburgh, PA
PhD Machine Learning — August 2023 -
Advisor: Fei Fang

University of Cambridge — Cambridge, England
MPhil Advanced Computer Science — October 2022 - June 2023
Graduated with Distinction

University of Maryland — College Park, MD
Bachelor of Science - Computer Science and Math, High Honors — August 2018 - May 2022
GPA: 3.97, Magna Cum Laude

Publications

Full Papers

Global Rewards in Restless Multi-Armed Bandits
NeurIPs 2024
Naveen Raman, Ryan Shi, Fei Fang

Understanding Inter-Concept Relationships in Concept-Based Models
ICML 2024
Naveen Raman, Mateo Espinosa Zarlenga, Mateja Jamnik

Human Uncertainty in Concept-Based AI Systems
AIES 2023
Katherine M Collins, Matthew Barker, Mateo Espinosa Zarlenga, **Naveen Raman**, Umang Bhatt, Mateja Jamnik, Ilia Sucholutsky, Adrian Weller, Krishnamurthy Dvijotham

Data-Driven Methods for Balancing Fairness and Efficiency in Ride-Pooling
IJCAI 2021
Naveen Raman, Sanket Shah, John Dickerson

Stress and burnout in open source: Toward finding, understanding, and mitigating unhealthy interactions
ICSE NIER 2020
Naveen Raman, Minxuan Cao, Yulia Tsvetkov, Christian Kästner, Bogdan Vasilescu

A Muffin-Theorem Generator
FUN 2018
Guangqi Cui*, John Dickerson*, Naveen Durvasula*, William Gasarch*, Erik Metz*, Jacob Prinz*, **Naveen Raman***, Daniel Smolyak*, Sung Hyun Yoo*

Workshop Papers

Do Concept Bottleneck Models Obey Locality?
Workshop on the Future of XAI at NeurIPs 2023
Naveen Raman, Mateo Espinosa, Juyeon Heo, Mateja Jamnik

Improving Learning-to-Defer Algorithms Through Fine-Tuning
Workshop on Human and Machine Decisions (WHMD) at NeurIPS 2021
Naveen Raman, Michael Yee

Eliciting Bias in Question Answering Models through Ambiguity
Machine Reading for Question Answering (MRQA) at EMNLP 2021
Andrew Mao*, **Naveen Raman***, Matthew Shu, Eric Li, Franklin Yang, Jordan Boyd-Graber

What more can Entity Linking do for Question Answering?
Human And Machine in-the-Loop Evaluation and Learning Strategies (HAMLETS) at NeurIPS 2020
Naveen Raman, Pedro Rodriguez, Jordan Boyd-Graber

Under Review

Data-driven Design of Randomized Control Trials with Guaranteed Treatment Effects
Santiago Cortes-Gomez, **Naveen Raman**, Aarti Singh, Bryan Wilder

An Extended Study on Restless Multi-Armed Bandits with Global Rewards
Naveen Raman, Ryan Shi, Sean Hudson, Ameesh Kapoor, and Fei Fang

Assortment Optimization for Matching Patients and Providers
Naveen Raman, Holly Wiberg

Do Concept Bottleneck Models Respect Localities?
Naveen Raman, Mateo Espinosa, Juyeon Heo, Mateja Jamnik

Professional Service

Machine Learning Blog *Blog Editor* August 2024 - Present
Organized ML Blog and edited blogposts

School of Computer Science *Graduate Application Support Program* October 2023 - Present
Assisting applicants to PhD programs with statement of purpose + resume by giving feedback and edits

Machine Learning Department *Social Committee* October 2023 - May 2024
Organized social events and ML Tea

School of Computer Science *Tech Nights* October 2023 - December 2023
Volunteered to teach computer science topics to local middle school girls

School of Computer Science *AI Mentorship Program* October 2023 - December 2023
Working with undergraduate students interested in AI research by teaching them fundamentals of research and giving them guidance

Student Community Action *Big Sibling* October 2022- May 2023
Matched up and met weekly with local elementary school students in Cambridge

Maryland Mentors Program *Math and Reading Tutor* September 2020-May 2022
Tutored elementary school students one-on-one in reading and math

College Park Academy *Academic Volunteer* September 2018-May 2021
Assisted with various after school programs at local charter school, including cybersecurity, homework help, and college application assistance

College Mentors for Kids *Mentor* January 2021 - May 2021
Met weekly with middle school students to provide advice and tutoring

Reviewing: NeurIPS (2022,2023,2024), AAAI (2025), ICML (2024), AAMAS (2024), COLING (2022)

Honors and Awards

ICML Travel Grant (declined)	2024
University of Maryland Undergraduate Researcher of the Year	2022
National Science Foundation Graduate Reserach Fellowship (GFRP)	2022
Churchill Scholarship (fully funded Cambridge MPhil)	2022
CRA Undergraduate Researcher of the Year Finalist	2021
Phillip Merrill Presidential Scholar	2021
Barry Goldwater Scholarship	2021
Brendan Iribe Scholarship (full tuition scholarship)	2020
President's Scholarship (4-year scholarship)	2018

Teaching

Teaching Assistant: Programming Languages, University of Maryland
Taught Ruby, Rust, and Functional Programming to UMD undergraduates (Fall 2019-Spring 2022)

Head Course Facilitator: Algorithms for Interviews, University of Maryland
Developed and taught student-run class on algorithms for coding interviews (Spring 2020-Spring 2022)

Teaching Assistant: Web Development, University of Maryland
Taught HTML and Javascript to non-CS major students at UMD (Spring 2019)

Experience

Carnegie Mellon University *Research Assistant* September 2023-Present

- Developing notification algorithms for food rescue tasks through improved bandit algorithms
- Developing assortment algorithms to match patients with providers

University of Maryland *Research Assistant* May 2018-May 2022

- Developed matching algorithms for rideshare applications that balanced fairness and profit
- Collected and analyzed data for entity linking algorithms to improve question answering performance

MIT Lincoln Labs *Research Intern* May 2021-August 2021

- Extended learning-to-defer algorithms for heterogeneous experts using semi-supervised learning

World Resource Institute *Electric School Bus Intern* February 2022-May 2022

- Analyzed and collected data on school bus depot locations through web scraping and data science techniques, making it clearer how to transition from gas to electric school busses

Facebook *Software Engineering Intern* May 2020-August 2020

- Developed full stack web application using React+Hack to debug issues with ranking models, and shipped code into production after rounds of UI testing

Carnegie Mellon University *Research Intern* May 2020-August 2020

- Investigated toxic and rude language in Github communities by developing a toxicity detector which was used to analyze trends across communities and timespans