ARVIND RAMASWAMI

Machine Learning, Optimization, and Algorithms

saramaswami@gmail.com | 404-458-1072 | Atlanta, Georgia, United States
arvindr9.github.io | @arvind_r15 | arvind-ramaswami | arvindr9

WORK EXPERIENCE

Machine Learning Engineer Intern

PerfectRec

June 2022 - August 2022 | Seattle, Washington

- Developed the startup's first ML-powered recommendation system, using AWS Sagemaker.
- Built a framework that enabled fitting a custom scikit-learn model (including polynomial regression and gradient boosted machines) for the recommendation system.
- Conducted a literature review of learn-to-rank and proposed ways to apply learn-to-rank to product recommendations

Software Development Engineer Intern

Amazon

May 2020 - August 2020 | Seattle, Washington

- Designed a recommender system for the Amazon Advertiser Partner Network (AAPN), and outlined the AWS tools to be used for the recommender system.
- Performed exploratory data analysis on the advertiser dataset.

Software Engineer Intern

Lawrence Livermore National Laboratory

May 2019 - August 2019 | Livermore, California

- Developed a testing framework for the National Ignition Facility (NIF), the largest laser facility in the world.
- Proposed data science techniques to validate the calculations.

Microsoft Student Partner

Microsoft

Sept 2017 - May 2020 | Atlanta, Georgia

- Student representative for Microsoft at Georgia Tech
- Gave talks and ran workshops for Georgia Tech students about cloud computing on Azure.

RESEARCH EXPERIENCE

Algorithms Research

Georgia Institute of Technology

Jan 2022 - Dec 2022

Advisor: Richard Peng

- Worked on a problem related to the Robust Interior Point Method
- Developed high-accuracy algorithms for the optimal transport problem

MOST PROUD OF

ICPC World Finalist
Placed Rank 6 in the 2022 ICPC North American Championship and went to the World Finals at Dhaka, Bangladesh

Meta Hacker Cup Top 200
Placed top 200 in Round 3 of the 2022 Meta Hacker Cup, out of over 27000 contestants worldwide

SKILLS

Python | C++ | Algorithm Design | Machine Learning | Optimization | Pytorch | Cloud computing (AWS, Azure)

LANGUAGES

English ●●●●●
Mandarin ●●●●○
Spanish ●●●◐○
Tamil ●●●○○

EDUCATION

MS in Computer Science

Georgia Institute of Technology

Jan 2021 - Dec 2022

Advisor: Richard Peng
Specialization: Machine Learning

BS in Computer Science

Georgia Institute of Technology

Aug 2017 - Dec 2020

Advisors: Sebastian Pokutta, Jacob Abernethy
Threads: Theory and Intelligence

ML Research

Georgia Institute of Technology

Jan 2018 - Dec 2021

- Worked in Jacob Abernethy's group (Aug 2019 - October 2021). Developed algorithms for adversarial robustness using techniques in multiclass boosting.
- Worked in Sebastian Pokutta's group (Jan 2018 - May 2019). Engineered adversarial attacks on random forest classifiers and developed methods to make them more robust.

PUBLICATIONS

Preprints

- J. Chen, Y. P. Liu, R. Peng, and A. Ramaswami, "Exponential convergence of sinkhorn under regularization scheduling," arXiv, 2022. DOI: 10.48550/ARXIV.2207.00736.

Other writeups

- Statistical Query Learning for Tensor PCA (2021, Project for ML Theory Class)
- SDPs for Max Cut Approximations (2021, Survey for Advanced Graph Theory Class)

LEADERSHIP / SERVICE

Georgia Tech Programming Team: President

Georgia Institute of Technology

Jan 2022 - Dec 2022

- Prepared content and lectured for weekly meetings in topics such as dynamic programming, data structures, and combinatorial optimization.
- In charge of arranging team practices for ICPC.

Big O Theory Club: President

Georgia Insitute of Technology

Aug 2020 - May 2021

- Gave talks about theoretical computer science
- Examples of topics discussed: randomized algorithms, flows. Invited other students to give talks about their research.

Other service

- Coach for Georgia ARML (American Regions Mathematics League) team: May - June 2022.
- Reviewer for Georgia Tech President's Undergraduate Research Awards (Fall 2022).

COURSEWORK

Math classes: Advanced Graph Theory, Graduate Probability I, Analysis I, Abstract Algebra I, Algebraic Topology I, High Dimensional Statistics

CS classes: Machine Learning Theory, Dynamic Algebraic Algorithms, High-Performance Computing, Deep Learning, Robot Intelligence: Planning, Applied Cryptography, Intro to Database Systems, NLP

Online certifications: Coursera Deep Learning Specialization

TEACHING

Algorithms Teaching Assistant

Georgia Institute of Technology

August 2019 - December 2019

- Teaching assistant for Professor Eric Vigoda's algorithms class (CS 3510).

Automata Teaching Assistant

Georgia Institute of Technology

January 2021 - December 2022

- Teaching assistant under Dr. Zvi Galil's Automata and Complexity class (CS 4510).