Arvind Ramaswami

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LinkedIn: http://linkedin.com/in/arvind-ramaswami GitHub: https://github.com/arvindr9
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Interests: Combinatorial optimization, machine learning

Education

Georgia Tech (Fall 2017 - Fall 2020): BS Computer Science. (Threads: Intelligence and Theory.
Cumulative GPA: 3.82)

Georgia Tech (Expected Spring 2021 - Fall 2022): MS in Computer Science (Machine Learning,
Cumulative GPA: 3.36)

Relevant Coursework:

Math Classes: Advanced Graph Theory, Graduate Probability I, Analysis I, Abstract Algebra I, Algebraic Topology I

CS Classes: Machine Learning Theory, High-Performance Computing, Deep Learning, Robot Intelligence: Planning, Applied Cryptography, Intro to Database Systems

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Research

Theory CS Research - *Advisor: Richard Peng* **Jan 2022 - Present**

Attempted to make progress on a problem related to the Robust Interior Point method. Currently working on approximation algorithms for the optimal transport problem.-

ML Research - *Advisor: Jacob Abernethy* **Sept 2019 — Oct 2021**

Evaluated the effectiveness of different optimization algorithms such as Mirror Prox in the adversarial learning problem. Wrote an undergraduate thesis *Minimax Perspective of Adversarial Examples* in Spring 2020.

Worked with a group to develop adversarial robustness algorithms using multiclass boosting.

ML Research - *Advisor: Sebastian Pokutta* **Jan 2018 — May 2019**

Engineered adversarial attacks on random forest classifiers and developed methods to make them more robust.

Publications / Submitted Papers

Sinkhorn has Exponential Convergence under Regularization (Under review, NeurIPS 2022). With Richard Peng, Yang Liu, Jingbang Chen.

Skills

Programming languages: C++, Python, Java, Javascript

Competitive programming: Qualified for Round 3 of Google Code Jam (2021), ACM ICPC World Finalist (Rank 6 out of 50 teams in the North America Championship)

Work Experience

PerfectRec - *Software Engineer Intern* **June 2022 - Aug 2022**

Building a recommender system that recommends products to people by asking them an interactive sequence of questions.

Amazon - *Software Development Engineer (SDE) Intern* **May 2020 — Aug 2020**

Designed a recommender system that matches advertisers to partners for AAPN (Amazon Advertiser Partner Network). Also performed cluster analysis on the advertiser data.

Lawrence Livermore National Laboratory - *Software Engineer Intern* **May 2019 — Aug 2019**

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

Leadership

Georgia Tech Programming Team - *(President from Spring 2022 to present)* **Aug 2017 — Present**

Prepares content for weekly meetings in topics such as dynamic programming, data structures, and combinatorial optimization. Arranges team practices for ICPC.

Big-O Theory Club - (*President from Fall 2020 - Spring 2021)* **Aug 2017 — May 2021**

Gave talks about theoretical computer science (examples of topics discussed: randomized algorithms, flows) and invited other students to give talks about their research.

Projects

ReconBlind Multi-Chess Agent **Nov 2020**

Worked on a team (for the class *Robot Intelligence: Planning*) to create an agent that would play Reconchess. Based our agent on the AlphaGo Zero paper by David Silver and incorporated a policy neural network with Monte-Carlo Tree Search.

DonationTracker **Aug 2018 - Dec 2018**

Created an Android application in a team of five that allows people in need in Atlanta to locate places to get aid and receive donations. Used SQLite to persist profile information and wrote extensive JUnit tests.

WeLocate **Oct 2017**

Built a website that uses Yelp's API and AWS Machine Learning to find where to open their business. Received first-place awards at VandyHacks for the Most Disruptive Hack and the Best Financial Hack.

Miscellaneous

Math Contests: Represented Georgia for the American Regions Mathematics League (ARML) in 2015 and 2017, qualifier for American Invitational Mathematics Exam (AIME) in 2017.

Violin: Previously a member of the Atlanta Symphony Youth Orchestra, Georgia All-State Orchestra. Currently playing in the Georgia Tech Symphony Orchestra. Also learned conducting under Dr. Chaowen Ting.

Spoken Languages: English, Spanish, Tamil, Chinese.