CURRICULUM VITAE

Vaidehi Srinivas
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EDUCATION

Ph.D. in Computer Science
Sep. 2021 – current
Advisor: Aravindan Vijayaraghavan
Area: Algorithms, Theoretical Machine Learning
Northwestern University
Evanston, Illinois

Fulbright Visiting Student
Sep. 2020 – May 2021
Host: Christian Schulz
Theory and Application of Algorithms group
University of Vienna
Vienna, Austria

B.S. in Computer Science, minor in German Studies
Aug. 2016 – May 2020
University and college honors
Carnegie Mellon University
Pittsburgh, Pennsylvania

PUBLICATIONS

The Burer-Monteiro SDP method can fail even above the Barvinok-Pataki bound
with Liam O'Carroll and Aravindan Vijayaraghavan,
NeurIPS 2022.
The Burer-Monteiro method is a practical and popular heuristic for solving semidefinite programs (SDPs). We provide a family of instances that have spurious local minima for high rank (so Burer-Monteiro could indeed fail), which justifies the use of beyond-worst-case paradigms like smoother analysis to obtain guarantees.

Memory Bounds for the Experts Problem [arXiv] [video]
with David P. Woodruff, Ziyu Xu, and Samson Zhou,
STOC 2022.
We initiate the study of the online learning with expert advice problem in the streaming (low memory) setting. Our upper and lower bounds give a smooth tradeoff between memory and regret.

Simpler Approximations for the Network Steiner-tree Problem [pdf]
advised by Anupam Gupta,
Undergraduate Honors Thesis 2020.
The 11/6 and 1.55-approximation algorithms given by Zelikovsky ('93) and Robins and Zelikovsky ('05) are classic results in approximation algorithms. They are also notorious for their very technical analyses. We provide a simple modular analysis by reducing to submodular function optimization under knapsack constraints (idea due to Deeparnab Chakrabarty).

AWARDS AND FELLOWSHIPS

2021 Todd M. and Ruth Warren Fellowship
2020 Fulbright Combined Award for Austria
2020 Phi Beta Kappa
2020 Andrew Carnegie Society Scholar

TEACHING

TA for CS 212: Mathematical Foundations of Computer Science
Fall 2022
Northwestern University

Fulbright English Teaching Assistant
Oct. 2020 – May 2021
Vienna, Austria

TA for 15-451: Algorithms
Spring 2020
Carnegie Mellon University

TA for 15-354: Computational Discrete Math
Fall 2019
Carnegie Mellon University

(Head) TA for 15-251: Great Ideas in Theoretical Computer Science
Spring 2018, Fall 2018, (Head TA) Spring 2019
Carnegie Mellon University

OUTREACH

Math Circles of Chicago
Sep. 2022 – current
Chicago, Illinois
Interest-based extracurricular math program for middle-school students

Books and Breakfast
Jan. 2022 – current
Evanston, Illinois
Need-based academic enrichment for elementary school students

Women@SCS and SCS-4-ALL
Jan. 2018 – May 2020
Carnegie Mellon University
Ran outreach programs and organized events for the computer science department. Co-president of Women@SCS in 2019-2020 academic year.

Calico Youth Services
May 2020 – August 2020
Palo Alto, California
Created and ran one-week summer program for middle school students joining a mentoring program, helped write grant applications and manage logistical tasks

FORGE
Aug. 2019 – May 2020
Pittsburgh, Pennsylvania
After school homework help for elementary-school students from refugee backgrounds

INTERNSHIPS

News Engineering Intern at Apple
May 2018 – Aug. 2018
Cupertino, California
Did comparative analysis between old and new article feed system for news articles in the Apple Stocks app, built a program to match articles between systems for comparison, and

provided feedback to engineering and publisher relations teams that was incorporated into news ranking

Software Engineering Intern at BlueJeans Network
Jun. 2017 – Aug. 2017
Mountain View, California
Worked with authentication APIs for videoconference users, wrote unit tests for REST APIs that used Cassandra and MySQL