Rohan Garg

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Citizenship: USA

Research Interests

Algorithmic Game Theory, Parallel and Distributed Computing, Combinatorial Optimization, Computational Social Choice

Current Position

Purdue University — West Lafayette, IN
Graduate Student — Aug 2020 – Present

Education

Purdue University — West Lafayette, IN
Ph.D. in Computer Science — Aug 2020 – Present
Advisor: Alex Psomas

The University of Texas at Austin — Austin, TX
B.S. in Electrical and Computer Engineering — Aug 2016 – May 2020
Track: Software Engineering
GPA: 3.5

Honors and Scholarships

Ross Fellow (Purdue): "Recognizes academic excellence." — 2020 – 2021
University Honors Fall (UT Austin) — 2016

Publications

Fairly Dividing Goods in Parallel
Rohan Garg, Alexandros Psomas.
(Working Paper)

Fast and Work-Optimal Parallel Algorithms for Predicate Detection
Rohan Garg.
arXiv preprint, 2020

Parallel Algorithms for Predicate Detection
Vijay K. Garg, Rohan Garg.
2019. Proceedings of the 20th International Conference on Distributed Computing and Networking. Association for Computing Machinery, New York, NY, USA.
ICDCN, 2019

Teaching Experience

CS 381: Intro to the Analysis of Algorithms, (Purdue) — Fall 2021
Head Graduate Teaching Assistant
In charge of creating assignments, administering discussion sessions, and holding office hours. Covering topics including dynamic programming, network flow, and intractability.

EE 360C: Algorithms, (UT Austin) Spring 2019, 2020

Teaching Assistant

Created assignments, tests and quizzes over topics including runtime analysis, intractability, and network flow. Administered discussion sessions and office hours. **Spring '19 rated 4.5/5**. **Spring '20 rated 4.8/5**.

Industry Experience

Amazon AWS Seattle, WA

Software Development Engineering Intern Summer 2019

Developed a serverless function that combined and modified data from DynamoDB Key-Store System for Commerce Platform. Worked with AWS S3, Lambda, and DynamoDB technologies.

Cox Automotive vAuto Inc. Austin, TX

Software Engineering Intern Summer 2018

Developed Python applications to perform keyword extraction and text-entity detection using AWS Comprehend NLP tool for Backend Services team. Wrote Automated Tests for the front-end of AuctionGenius Products using C#/.NET and the Selenium Testing Framework to aid the Automated Testing team.

Other Research

Approximate Max-Flow and Hierarchical Cut Decompositions

Mentor: Kent Quanrud (Purdue) Aug 2020 – Jan 2021

Studied Max-Flow, Sparsest Cut, and Nearly Linear time algorithms for Hierarchical Cut Decompositions of Weighted Graphs.

Machine Learning for Testing Graph Properties

Mentor: Sarfraz Khurshid (UT Austin) Aug 2019 – May 2020

Studied machine learning models for testing data structure invariants. Extended work to graph properties. Full report available on my webpage.

Community Detection

Mentor: Joe Neeman (UT Austin) Aug 2018 – Jan 2019

Studied Community Detection and Spectral Clustering on Random Graphs.

Courses

Purdue University West Lafayette, IN

Enrolled: Mathematical Toolkit for Theoretical CS.

Completed: Data Communication and Computer Networks, Distributed Systems, Machine Learning and Algorithms Seminar, Advanced Topics in Algorithms, Algorithmic Economics, Sublinear Algorithms, Approximation Algorithms, Randomized Algorithms (Audit), Graduate Algorithms.

The University of Texas at Austin Austin, TX

Graduate: Combinatorics and Graph Theory (Audit), Graduate Algorithms, Mobile Computing (Audit).

Undergraduate: Abstract Algebra, Software Design I & II, Algorithms, Probability, Linear Algebra, Number Theory, Data Science, Theory of Computation.

Talks and Tutorials

Parallel Algorithms for Predicate Detection
Purdue Theory Reading Group — Spring 2022

Approaching Utopia: Strong Truthfulness and Externality-Resistant Mechanisms
Purdue Theory Seminar — Fall 2021

Improved Bounds for Matching in Random Streams
Purdue Theory Seminar — Spring 2021

Pigeonhole Principle and Some Applications
Purdue Algorithms Reading Group — Fall 2020

Error Correcting Codes
Purdue Algorithms Reading Group — Fall 2020

Intro to Parallel and Distributed Computing
Purdue Algorithms Reading Group — Fall 2020

The Feedback Vertex Set Problem
Purdue Algorithms Reading Group — Summer 2020

Approximation Algorithms for Multiway Cut and k-Cut
Purdue Algorithms Reading Group — Summer 2020

Network Flow
Purdue Algorithms Reading Group — Spring 2020

Undergraduate Research and Jobs in Academia/Industry
Women in Natural Sciences First-Year Interest Group — Spring 2020

Skills

Programming
Proficient in: Java, Python.
Frameworks/Tools: AWS Comprehend NLP, Selenium Web Testing, LaTeX.
Industry Practices: Agile Methodology, Git Version Control, JUnit/NUnit.
Software: AutoDesk Inventor (CAD), MultiSim/LogiSim (Circuit Simulation), MS Office.

Languages
English (Fluent), Hindi (Advanced), Spanish (Limited)

Service and Outreach

Purdue Theory Seminar Group 2022
Serving as co-organizer in charge of scheduling and preparing talks.

Purdue Theory Reading Group 2022
Serving as co-organizer in charge of scheduling and preparing talks.

Purdue CS Graduate Student Board
Faculty Search Committee Representative. 2021-22
General Board Member. 2022-23

Purdue Algorithms Reading Group 2020
Served as co-organizer in charge of scheduling and preparing talks.

UT Austin - Code Orange 2018-19
Taught elementary school students basic programming principles.

UT Austin - Student Engineers Educating Kids 2018
Taught elementary school students basic engineering principles.

Other Interests

Badminton, Tennis, Soccer, Contract Bridge, Chess, English Premier League (Manchester United F.C).

Last Updated

February 2023