Naveen Durvasula

(+1) 240-888-5450 | nkd2126@columbia.edu | ndurvasula.com | ndurvasula

Summary

I'm a second-year Ph.D student at Columbia University advised by Tim Roughgarden. I also work on mechanism design research at Ritual. Currently, my work centers around the economic analysis of blockchain/web3 systems. In the past, I've worked on problems that broadly span computer science, economics, optimization, and statistics.

Education

Columbia University   *New York, NY*
Ph.D. in Computer Science   *2023 - Present*
Advised by Tim Roughgarden.

University of California, Berkeley | Management, Entrepreneurship, and Technology Program   *Berkeley, CA*
Dual B.S. in Electrical Engineering and Computer Science + Business Administration | GPA: 4.00 (technical)/3.962   *2019 - 2023*
Relevant Coursework: Graduate Probability/Measure Theory (A+), Graduate Algorithms (A+), Graduate Algorithmic Game Theory (A+), Graduate Sketching Algorithms (A), Graduate Algebra (A), Machine Learning (A+), Variational Methods (A+).

Montgomery Blair High School   *Silver Spring, MD*
Diploma | Science, Mathematics, and Computer Science Magnet Program   *2015 - 2019*

Selected Honors & Awards

2023	**INFORMS Undergraduate Operations Research Prize Winner**	*Phoenix, AZ*
2021	**Barry Goldwater Scholar**	
2019	**ACM/CSTA Cutler-Bell Prize for High School Computing**	*Phoenix, AZ*
2018	**Research Science Institute Scholar**	*Cambridge, MA*

Publications

Beyond Multi-Dimensional Fee Markets.
Working paper.
Naveen Durvasula* and Maryam Bahrani*

How Secure is Your Restaking Network?.
Working paper.
Naveen Durvasula and Tim Roughgarden

Observing Context Improves Disparity Estimation when Race is Unobserved.
Proceedings of the 2024 AAAI/ACM Conference on AI, Ethics, and Society.
Kweku Kwegyir-Aggrey, Naveen Durvasula, Jennifer Wang, and Suresh Venkatasubramanian

Smoothed Analysis of Online Nonparametric Auctions.
Proceedings of the 24th ACM Conference on Economics and Computation.
Naveen Durvasula, Manolis Zampetakis, and Nika Haghtalab

Stochastic Minimum Vertex Cover in General Graphs: a 3/2-Approximation.
Proceedings of the Fifty-Fifth Annual ACM Symposium on Theory of Computing.
Mahsa Derakshan, Naveen Durvasula, and Nika Haghtalab

Forecasting Patient Outcomes in Kidney Exchange.
Proceedings of the Thirty-First International Joint Conference on Artificial Intelligence.
Naveen Durvasula, Aravind Srinivasan, and John Dickerson

Recommending with Recommendations.

Preprint.

Naveen Durvasula*, Franklyn Wang*, and Scott Duke Kominers

Utility-Based Communication Requirements for Stable Matching in Large Markets.

Preprint.

Naveen Durvasula

Extending Universal Approximation Guarantees.

Preprint.

Naveen Durvasula

A Muffin-Theorem Generator.

Proceedings of the Ninth International Conference on Fun with Algorithms.

Guangiqi Cui, John Dickerson, Naveen Durvasula, William Gasarch, Erik Metz, Jacob Prinz, Naveen Raman, Daniel Smolyak, Sung Hyun Yoo ($\alpha - \beta$)

Talks

Beyond Multi-Dimensional Fee Markets.

Presented at the Workshop on Blockchains and Decentralized Finance at EC '24.

Naveen Durvasula and Maryam Bahrani

Smoothed Analysis of Online Nonparametric Auctions.

Presented at EC '23.

Naveen Durvasula, Manolis Zampetakis, and Nika Haghtalab

Stochastic Minimum Vertex Cover in General Graphs: a 3/2-Approximation.

Presented at STOC '23.

Mahsa Derakshan, Naveen Durvasula, and Nika Haghtalab

Characterizing Anomalies with Explainable Classifiers.

Presented at the DistShift and DMML Workshops at NeurIPS '22.

Naveen Durvasula, Valentine d'Hautville, Keegan Hines, John Dickerson

Forecasting Patient Outcomes in Kidney Exchange.

Presented at the Special Track on AI for Social Good at IJCAI '22.

Naveen Durvasula, Aravind Srinivasan, and John Dickerson

Recommending with Recommendations.

Presented at the Seventh Marketplace Innovation Workshop.

Naveen Durvasula, Franklyn Wang, and Scott Duke Kominers

A Bayesian Optimization Approach to Estimating Expected Match Time and Organ Quality in Kidney Exchange.

Presented at the AI for Public Health Workshop at ICLR '21.

Naveen Durvasula, Aravind Srinivasan, and John Dickerson

The Muffin Problem.

Presented at FUN '18, G4G13, and the 2018 Joint Mathematics Meetings of the AMS and MAA.

Guangiqi Cui, John Dickerson, Naveen Durvasula, William Gasarch, Erik Metz, Jacob Prinz, Naveen Raman, Daniel Smolyak, Sung Hyun Yoo ($\alpha - \beta$)

Industry Experience

Ritual   *New York, NY*

RESEARCHER   *Summer 2023 - Present*

- Developing economic mechanisms for blockchain protocols with provable guarantees in an open-source AI ecosystem

Arthur AI   *New York, NY*

RESEARCH INTERN   *Summer 2022*

- Developed a state-of-the-art explainable anomaly detection system, which has since been moved to production
- Analyzed and identified flaws in industry-standard approaches for detecting bias in deployed ML models
- Studied the long-term effects of using greedy training policies for models used in selection problems (e.g. lending models, fraud detection, etc.)

QuantCo   *Boston, MA | Berlin, Germany*

CAUSAL INFERENCE INTERN   *Summer 2021*

- Analyzed the effects COVID-19 on deployed models used by the second-largest health insurer in Germany for detecting cases of medical malpractice
- Created a process for optimally balancing insurance claims handling between automated models and human claims handlers for the same client
- Developed tools for automatically improving model performance (e.g. Bayesian-optimization-based hyperparameter tuning)

Summer Stem Institute

HEAD TEACHING ASSISTANT   *Summer 2020*

- Co-wrote an applied statistics course that was broadcast to hundreds of students around the world

Skills

Computer/Software/Programming	Python, Java, C#, C++, JavaScript/HTML, LaTeX, Linux, Arduino, Git, Unity3D
Languages	Spanish – earned the Maryland Seal of Biliteracy, Telugu