Karthik Seetharaman

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Education

Stanford University — Stanford, CA
B.S. in Mathematics, GPA: 4.05 — *Sep. 2022 – Jun. 2026*
Relevant Coursework: *Machine Learning, Statistical Inference, PhD-Level Probability Theory, Convex Optimization*

Work Experience

Stanford AI Lab — Feb. 2024 - Present
Undergraduate Research Assistant — *Stanford, CA*
- Developing novel algorithms for reinforcement learning with human feedback in a heterogeneous population
- **First-author preprint** submitted to *NeurIPS 2024*

Stanford Department of Economics — Oct. 2023 - Present
Undergraduate Research Assistant — *Stanford, CA*
- Researching mechanism design & game theory, currently characterizing long-run equilibria of cryptocurrencies

Qualcomm — Jun. 2023 - Sep. 2023
Embedded Software Engineer Intern — *San Diego, CA*
- Automated all aspects of DLL testing for the RF Calibration team using Python, saved about 5 minutes per test
- Created a full-stack data-handling system for DLL testing using SQL, Flask, JavaScript

Virsec Systems, Inc. — May 2022 - Aug. 2022
Software Engineering Intern — *San Jose, CA*
- Developed a CLI to assist clients with metrics for 1,000,000+ security incidents using Java, Python, MongoDB

WPI ASSISTments Lab — Jun. 2021 - Jul. 2022
Artificial Intelligence Research Intern — *Worcester, MA*
- Developed an NLP model to grade responses to open-ended math questions using Python, Pandas, Scikit-Learn
- Improved upon all previously published results - average grading error dropped from 0.577 to 0.524 (9%)
- **First-author publication** in *AIED 2022*

Mathematics Research Experience & Publications

The Rank-Generating Functions of Upho Posets — Jan. 2020 – Jan. 2021
Massachusetts Institute of Technology — *Cambridge, MA*
- **Presented** at the 2021 Joint Mathematics Meetings, selected as an *Outstanding Poster* (top 20% of presentations)
- **Published** in *Discrete Mathematics, Vol. 345, Issue 1*, marked Editors' Choice (top 15 articles in last 3 years)

Patterns in the Lattice Homology of Seifert Homology Spheres — Jan. 2021 – Jan. 2022
Massachusetts Institute of Technology — *Cambridge, MA*
- **Won** Honorable Mention in the 2022 S.T. Yau Mathematics Award, top 10 out of over 1,000 projects submitted

Honors & Awards

- **Top 200, 2022 & 2023 Putnam Competition** – Scored 34/120 on the 2022 Putnam exam and 41/120 on the 2023 Putnam exam, median score was 1/120
- **MIT PRIMES Scholar** – Top 30 high schoolers in the USA, selected to perform graduate-level math research
- **High School Mathematical Competition in Modeling, NCTM Teacher's Award** – Selected as best mathematical paper out of 500 submitted for modeling optimal summer jobs for high school students
- **National Math Competitions** – 2x USAJMO & 1x USAMO qualifier; 4th place, top 5, & top 10 at the 2021 Yale, Johns Hopkins, and Stanford Math Tournaments, respectively; 2x Gold Medal in USAMTS (top 1% of participants)
- **2x PROMYS Participant** – High school math summer program with <10% acceptance rate, completed high-level coursework and research in number theory, topology, logic

Skills

Programming: Python (Pandas, Scikit-Learn, NumPy, Flask, PyTorch), C++, C, Java, JavaScript (ReactJS), SQL, LaTeX, Unix, Excel, HTML/CSS