Aditya Prasad

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Education

University of Chicago June 2024–Present
Advisor: Prof. Haifeng Xu *Ph.D. in Computer Science - GPA: 4.0/4.0*

- Coursework: Mathematical Toolkit, Responsible Use of Data, Online Learning Operations and Electronic Markets

University of Southern California August 2020–May 2024
W.V.T. Rusch Engineering Honors Program *B.S. in Computer Science – Magna Cum Laude*

- Graduate Coursework: Convex and Combinatorial Optimization, Advanced Analysis of Algorithms, Frontiers of Machine Learning, Theory of Machine Learning
- Selected Undergraduate Coursework: Analysis of Algorithms, Data Structures, Operating Systems, Software Engineering, Computer Systems, Artificial Intelligence

Papers

($\alpha\beta$) — Denotes that authors are ordered alphabetically, as is standard in computer science theory.

The Keychain Problem: On Minimizing the Opportunity Cost of Uncertainty
*($\alpha\beta$) Ramiro Deo-Campo Vuong, Robert Kleinberg, **Aditya Prasad**, Eric Xiao, Haifeng Xu* In submission, 2025 — arXiv

dpvis: A Visual and Interactive Learning Tool for Dynamic Programming
*David H. Lee, **Aditya Prasad**, Ramiro Deo-Campo Vuong, Tianyu Wang, Eric Han, David Kempe* SIGCSE TS, 2025 — arXiv

On Supermodular Contracts and Dense Subgraphs
*($\alpha\beta$) Ramiro Deo-Campo Vuong, Shaddin Dughmi, Neel Patel, **Aditya Prasad*** SODA, 2024 — arXiv

Talks

On Supermodular Contracts and Dense Subgraphs
(Talk, UChicago Theory Lunch 2025) and (Talk, USC Theory Lunch 2024)

dpvis: A Visual and Interactive Learning Tool for Dynamic Programming
(Talk, SIGCSE TS, 2025)

Research Experience

Ph.D. Student June 2024–Present
University of Chicago *Chicago, IL*

- Working with Prof. Haifeng Xu on various problems in contract design and combinatorial optimization.
- Working with Prof. Haifeng Xu and Prof. Robert Kleinberg (Cornell University) to design and develop algorithms for the Keychain Problem.

Research Assistant May 2022–May 2024
University of Southern California *Los Angeles, CA*

- Worked with Prof. Shaddin Dughmi to solve the supermodular single and multi-agent contracts problem.
- Worked with Prof. Vatsal Sharan to find new characteristics of optimal vertices in linear programming.
- Worked with Prof. David Kempe to design a general-purpose dynamic programming visualization library.

Remote Research Assistant July 2019–May 2020
Purdue University *Princeton, NJ*

- Collaborated remotely with Prof. Wreeto Kar to combine machine learning algorithms in ensemble learners.

Teaching

DATA 37200 (Learning, Decisions, and Limits) Teaching Assistant January 2025–March 2025
University of Chicago *Prof. Haifeng Xu*

CSCI 270 (Algorithms) Course Producer January 2022–May 2023
University of Southern California *Prof. David Kempe and Prof. Shahriar Shamsian*

CSCI 170 (Discrete Mathematics) Course Producer June 2023–August 2023
University of Southern California *Prof. Shaddin Dughmi*

Honors

NSF Summer Research Grant June 2022–August 2022

- Summer research grant for work in contract theory with Prof. Shaddin Dughmi.

USC Viterbi Deans List

- Fall 2020, Spring 2021, Fall 2022, Spring 2023, Fall 2024

Projects

dpvis - A Dynamic Programming Visualizer August 2023–October 2024

David H. Lee, Aditya Prasad, Ramiro Deo-Campo Vuong, Tianyu Wang, Eric Han, David Kempe Documentation

- Developed a library with Professor David Kempe to visualize for arbitrary dynamic programs in Python.
- Creates an interactive visualization of arbitrary 1d or 2d dynamic program as it fills in the dynamic programming array.
- Released on Pypi in December 2023 for future use by students in USC's CSCI 270.

Skills & Activities

Languages: Python, C++, C, Java, Matlab, R, Arduino
Libraries: Plotly, Matplotlib, Dash, NumPy, Tensorflow, scikit-learn, pandas, Keras, Pygame, Pyserial
Activities: Rock Climbing, Chess, Poker, Running, Hackathons