

Aditya Karan

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EDUCATION

University of Illinois at Urbana-Champaign (UIUC)

- PhD in Computer Science
- Advisor: Hari Sundaram

Aug 2020 – May 2026

Harvard University

- Masters of Engineering in Computational Science and Engineering
- Advisor: Hima Lakkaraju
- Thesis: Fair and Interpretable Diverse Clustering

Sep 2018 – May 2020

California Institute of Technology

- Bachelors of Science with Honors in Applied and Computational Mathematics and Computer Science

Sep 2012 – Jun 2016

EXPERIENCE

Vijil

- Applied Science Intern
- Implemented an approximate solution for several large LLM benchmark (DecodingTrust, OpenLLM) to give an accurate estimate of trust of an LLM more efficiently.

May 2024-

Instacart

- Machine Learning PhD Intern
- Initiated and developed a more personalized payment authorization amount per user with \$10MM estimated impact with work resulting in a *Pending Patent Application (18/965,877) "Using Machine-Learning Model of an Online System for Dynamic Modification of an order authorization buffer."*
- Built a framework a generic contextual bandit process to perform automatic feature selection and mining through existing experiments for heterogeneous treatment effects

May 2023- Aug 2023

Snap Inc.

- Applied Research Intern
- Developed a POC on joint user segmentation and retention modeling for subgroup analysis
- Provided Meaningful insights on user content preferences that tend to correlate higher retention

May 2022- Aug 2022

Terrafuse (joint with Lawrence Berkeley National Lab),

- Intern
- Developed market design for wildfire risk for commercialization of high resolution climate forecasting

May 2019- Aug 2019

Goldman Sachs,

- Strategist in Global Liquidity Products
- Modeled forward looking funding requirements as required by Federal Reserve's Comprehensive Capital Analysis and Review process (CCAR) and the consequences to Funds Transfer Pricing (FTP) management.
- Implemented various aspect of FTP framework to incentive prudent spot and contingent liquidity risk management
- Systematizing and automatic calculation and evaluation of internal liquidity metrics
- Repo pricing under various liquidity and funding constraints.

Jul 2016 – Jul 2018

RESEARCH

Publications

- **Aditya Karan**, Naina Balepur, and Hari Sundaram. 2023. Your Browsing History May Cost You: A Framework for Discovering Differential Pricing in Non-Transparent Markets. In 2023 ACM Conference on Fairness, Accountability, and Transparency (FAccT '23), June 12–15, 2023, Chicago, IL, USA. ACM, New York, NY, USA 19 Pages. <https://doi.org/10.1145/3593013.3594038>
- **Aditya Karan**, Naina Balepur, and Hari Sundaram. 2025. Oh the Prices You'll See: Designing a Fair Exchange System to Mitigate Personalized Pricing. To appper in 2025 ACM Conference on Fairness, Accountability, and Transparency (FAccT '25). <https://arxiv.org/abs/2409.02777>
- **Aditya Karan**, Nicholas Vincent, Karrie Karahalios, Hari Sundaram. 2025. Algorithmic Collective Action with Two Collectives. To appper in 2025 ACM Conference on Fairness, Accountability, and Transparency (FAccT '25)

Fair and Interpretable Diverse Clustering (Master's Thesis)

- Developed a generative model that generates sets (clustering) of clusters where the resulting clusters are diverse, interpretable, and obey some fairness constraint.

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| TECHNICAL SKILLS | Interpretable Machine Learning, Deep Learning, Statistical Reinforcement Learning, Game Theory, Mobile Robotics, ROS, Data Science, Bayesian Inference, Auditing, Financial Modeling, Funds Transfer Pricing, Python, Spark, PyTorch, PyMC3, C, C++, Java, Ocaml, Matlab, Scala, SQL, MongoDB, Slang, Statistics | |
| AWARDS | <ul style="list-style-type: none"> Computer Science Excellence Fellowship | Aug 2020 – May 2021 |
| TEACHING EXPERIENCE | Courses TA <ul style="list-style-type: none"> Probability & Statistics, Networks & Economics, Intro Computer Science, Functional Programming Awards and Certification <ul style="list-style-type: none"> Teacher Scholar Certificate - UIUC Graduate Teaching Certificate - UIUC Teacher Ranked as Excellent- UIUC (Spring 2021-Fall 2024) | |
| ACADEMIC SERVICE | FAcCT Program Committee Member | 2025 |
| | AIES Program Committee Member | 2024 |
| OUTSIDE INVOLVEMENT | Chicago Metropolitan Agency for Planning - Citizen Advisory Board Member | Mar 2022 – |
| | IMSA Alumni Association Board Member | Jul 2017 – Jul 2018 |