Aravind Reddy Talla

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Education

Northwestern University — Evanston, Illinois, USA
Ph.D. in Computer Science, Advisors: Konstantin Makarychev and Aravindan Vijayaraghavan — June 2023
M.S. in Computer Science, GPA: 4.0/4.0 — March 2021

Indian Institute of Technology (IIT) Kanpur
Bachelor of Technology (B.Tech.) in CSE with minor in Physics, Distinction — May 2018

Employment

IIT Hyderabad
Visiting Assistant Professor, Department of Artificial Intelligence (AI) — July 2024 -

Broad Institute of MIT and Harvard — Cambridge, Massachusetts
Postdoctoral Associate, Mentor: Victoria Popic — July 2023 - Jan 2024

Adobe Research — San Jose, California (remote)
Intern, Primary mentor: Ritwik Sinha — Summer 2022
Intern, Primary mentors: Ryan Rossi and Zhao Song — Summer 2021

Paris Centre for Quantum Technologies, Université Paris Diderot — Paris, France
Intern, Mentors: Eleni Diamanti and Iordanis Kerenidis, partly funded by Charpak Scholarship — Summer 2017

Centre for Quantum Technologies, National University of Singapore — Singapore
Intern, Mentor: Hartmut Klauck — Summer 2016

Selected Publications

Dynamic Tensor Product Regression
with Zhao Song and Lichen Zhang, link — *NeurIPS 2022*

One-Pass Algorithms for MAP Inference of Nonsymmetric Determinantal Point Processes
with Ryan Rossi, Zhao Song, Anup Rao, Tung Mai, Nedim Lipka, Gang Wu, Eunyee Koh, and Nesreen Ahmed, link — *ICML 2022*

Beyond Perturbation Stability: LP Recovery Guarantees for MAP Inference on Noisy Stable Instances
with Hunter Lang, David Sontag, and Aravindan Vijayaraghavan, link — *AISTATS 2021*

Improved Guarantees for k-means++ and k-means++ Parallel
with Konstantin Makarychev and Liren Shan, link — *NeurIPS 2020*

Other Publications

Online Adaptive Mahalanobis Distance Estimation
with Lianke Qin and Zhao Song, arXiv link — *IEEE BigData 2023*

Adaptive and Dynamic Multi-Resolution Hashing for Pairwise Summations
with Lianke Qin, Zhao Song, Zhaozhuo Xu, and Danyang Zhuo, link — *IEEE BigData 2022*

Patent

Online Inference and Learning for Nonsymmetric Determinantal Point Processes — 2022
with Ryan Rossi, Zhao Song, Anup Rao, Tung Mai, Nedim Lipka, Gang Wu, and Eunyee Koh, link — *Filed at USPTO*

Awards & Research Grants

Adobe Research Gift Grant ($20,000) — 2022
Peter and Adrienne Barris Outstanding Teaching Assistant Award, Northwestern, press release — 2022
Charpak Scholarship for Research Internship, Government of France — 2017
Academic Excellence Award, IIT Kanpur — 2015
National Initiative on Undergraduate Science Scholarship, HBCSE (TIFR) — 2015
Gold Medallist, Indian National Physics Olympiad, *National top 35* — 2014

Conference Travel Grants

NeurIPS 2022 Scholar Award ($2000) 2022
FOCS 2022 Travel Award ($425) 2022
ICML 2022 Participation Grant ($400) 2022
STOC 2019 Student Travel Grant ($600) 2019

Teaching Experience

Instructor at IIT Hyderabad:

- Introduction to Submodular Functions (EE 5328) - 5 week course, July - Sep 2024
- Introduction to Modern Artificial Intelligence (AI 1001) - 5 week course, Sep - Oct 2024

Teaching Assistant at Northwestern:

- Mathematical Foundations of Computer Science (CS 212) - Spring 2022, Fall 2020, Fall 2019
  - Received an award for being the **best TA** in the Spring 2022 quarter, press release.
- Design & Analysis of Algorithms (CS 336) - Winter 2019

Teaching Assistant at IIT Kanpur: Fundamentals of Computing (ESC 101) - Winter 2018

Volunteer Math Tutor: As a part of the non-profit Tutoring Chicago program, I tutored a Chicago area middle-school student for the 2021-22 academic year, mainly focusing on middle-school and high-school math.

Guest lectures at Northwestern:

- Submodular Function Maximization — Algorithms for Big Data, April 2022
- Introduction to Markov Chains — Math Toolkit for Theoretical Computer Scientists, May 2019

Service

Conference Reviewer:

- Neural Information Processing Systems (NeurIPS) 2021 - 2024
- International Conference on Machine Learning (ICML) 2022 - 2024
- International Conference on Learning Representations (ICLR) 2022 - 2025
- International Conference on Artificial Intelligence and Statistics (AISTATS) 2023 - 2025
- Foundations of Software Technology and Theoretical Computer Science (FSTTCS) 2024

Workshop Leader and Mentor: NeurIPS 2022 High-School Outreach Program

Board Member: CS PhD Advisory Council (NU, 2020 - 2022)

Webmaster: Northwestern CS Theory group (2018 - 2023)

Coordinator at IIT Kanpur student groups: Association for Computing Activites (ACA), Card & Board Games Club (CBG), and Science Coffeehouse (SCH) (2016 - 17)

Technical Skills

Programming Languages : Python, C

Natural Languages : English, Telugu, Hindi - Native/Bilingual Proficiency;
Korean - Limited Working Proficiency

Invited talks and poster sessions

On MAP Inference of Ferromagnetic Potts Models and Nonsymmetric Determinantal Point Processes :

- IIT Madras, Department of Data Science and Artificial Intelligence (DSAI) — Sep 2024, Chennai
- IIT Kanpur, Department of Computer Science and Engineering (CSE) — Jun 2024, Kanpur
- IISc Bangalore, as a part of Bangalore Theory Seminar, YouTube link — May 2024, Bengaluru
- IIT Hyderabad, Department of CSE and Department of AI — May 2024, Hyderabad

Dynamic Tensor Product Regression :

- Neural Information Processing Systems (NeurIPS) — Dec 2022, New Orleans, LA

On Clustering, MAP Inference, and Causal Inference :

- Broad Institute of MIT and Harvard, Popic Lab — Nov 2022, Cambridge, MA
- Stanford University, Aghaeepour Lab — Oct 2022, Stanford, CA

Beyond Perturbation Stability: LP recovery guarantees for MAP Inference on noisy stable instances :

- University of Chicago Theory Lunch — Nov 2022, Chicago, IL
- International Conference on Artificial Intelligence and Statistics (AISTATS) — April 2021, virtual

One-Pass Algorithms for MAP Inference of Nonsymmetric Determinantal Point Processes :

- NSF TRIPODS meeting (poster) — Sep 2022, virtual
- International Conference on Machine Learning (ICML) — July 2022, Baltimore, MD

Improved Guarantees for k-means++ and k-means++ Parallel :

- Neural Information Processing Systems (NeurIPS) — Dec 2020, virtual