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) 22 July 2024 -

Broad Institute of MIT and Harvard Cambridge, Massachusetts, USA
Postdoctoral Associate, Mentor: Victoria Popic 05 July 2023 - 10 Jan 2024

Adobe Research San Jose, California, USA (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

PUBLICATIONS

Online Adaptive Mahalanobis Distance Estimation
with Lianke Qin and Zhao Song, conference proceedings link *BigData 2023*

On MAP Inference of Ferromagnetic Potts Models and Nonsymmetric Determinantal Point Processes
PhD Thesis, Northwestern University, ProQuest link *2023*

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

One-Pass Algorithms for MAP Inference of Nonsymmetric Determinantal Point Processes
with Ryan Rossi, Zhao Song, and others, conference proceedings link *ICML 2022*

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

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

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

PATENT

Online Inference and Learning for Nonsymmetric Determinantal Point Processes 2025
with Ryan Rossi, Zhao Song, and others, Google Patents link *US12288237B2*

Awards & Research Grants

Adobe Research Gift Grant ($20,000), awarded for a grant application I wrote to support my PhD	2022
Peter and Adrienne Barris Outstanding Teaching Assistant Award, Northwestern, press release	2022
CS Supplemental Award ($3,000), Northwestern, for being one of the top CS PhD applicants	2018
Charpak Scholarship for Research Internship, Government of France	2017
Academic Excellence Award, IIT Kanpur, for being in the top 10% of the batch by first-year CPI	2015
National Initiative on Undergraduate Science Scholarship, HBCSE (TIFR)	2015
Gold Medallist, Indian National Physics Olympiad (INPhO) 2014, *National top 35*	2014
All India Rank 189, JEE Advanced 2014	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:

- Convex Optimization/Optimization-1 (AI 2101/AI 1233) : Full semester course, Jan - May 2025, Course Rating: 4.03/5.00, Instructor rating: 4.02/5.00 (158 students enrolled, 124 ratings submitted)

- Programming for AI (AI 1013): 10 week course, co-taught with Dr. P.N. Karthik, Course Rating: 4.71/5.00, Instructor rating (only for me): 4.58/5.00 (36 students enrolled, 34 ratings submitted)

- Introduction to Modern Artificial Intelligence (AI 1001) : 5 week course, Sep - Oct 2024, Course rating: 4.07/5.00, Instructor rating: 4.02/5.00, (103 students enrolled, 90 ratings submitted)

- Introduction to Submodular Functions (EE 5328) : 5 week course, July - Sep 2024, Course rating: 4.35/5.00, Instructor rating: 4.70/5.00, (5 students enrolled, 4 ratings submitted)

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 and Outreach

Conference Reviewer:

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

Invited Speaker: For 300 high-school students, Oak Valley International School, Hyderabad, Jun 2025

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
- IIT Kanpur, Department of Computer Science and Engineering (CSE)   Jun 2024
- IISc Bangalore, as a part of Bangalore Theory Seminar, YouTube link   May 2024
- IIT Hyderabad, Department of CSE and Department of AI   May 2024

Dynamic Tensor Product Regression :

- Neural Information Processing Systems (NeurIPS)   Dec 2022, New Orleans, Louisiana, USA

On Clustering, MAP Inference, and Causal Inference :

- Broad Institute of MIT and Harvard, Popic Lab   Nov 2022, Cambridge, Massachusetts, USA
- Stanford University, Aghaeepour Lab   Oct 2022, Stanford, California, USA

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

- University of Chicago Theory Lunch   Nov 2022, Chicago, Illinois, USA
- 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, Maryland, USA

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

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