

# Aravind Reddy Talla

[arareddy@ai.iith.ac.in](mailto:arareddy@ai.iith.ac.in) | [aravindreddy.com](http://aravindreddy.com)

## EDUCATION

|   |                         |
|---|-------------------------|
| <b>Northwestern University</b>  | 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              |
| <b>Indian Institute of Technology (IIT) Kanpur</b>                                      |                         |
| Bachelor of Technology (B.Tech.) in CSE with minor in Physics, Distinction              | May 2018                |

## EMPLOYMENT

|   |                               |
|---|-------------------------------|
| <b>IIT Hyderabad</b>  |                               |
| Visiting Assistant Professor, Department of Artificial Intelligence (AI)                      | July 2024 -                   |
| <b>Broad Institute of MIT and Harvard</b>   | Cambridge, Massachusetts      |
| Postdoctoral Associate, Mentor: Victoria Popic  | July 2023 - Jan 2024          |
| <b>Adobe Research</b>   | San Jose, California (remote) |
| Intern, Primary mentor: Ritwik Sinha  | Summer 2022                   |
| Intern, Primary mentors: Ryan Rossi and Zhao Song   | Summer 2021                   |
| <b>Paris Centre for Quantum Technologies, Université Paris Diderot</b>                        | Paris, France                 |
| Intern, Mentors: Eleni Diamanti and Iordanis Kerenidis, partly funded by Charnpak Scholarship | Summer 2017                   |
| <b>Centre for Quantum Technologies, National University of Singapore</b>                      | Singapore                     |
| Intern, Mentor: Hartmut Klauck  | Summer 2016                   |

## SELECTED PUBLICATIONS

|  |                     |
|--|---------------------|
| <b>Dynamic Tensor Product Regression</b>   |                     |
| with Zhao Song and Lichen Zhang, <a href="#">link</a>  | <i>NeurIPS 2022</i> |
| <b>One-Pass Algorithms for MAP Inference of Nonsymmetric Determinantal Point Processes</b>                               |                     |
| with Ryan Rossi, Zhao Song, Anup Rao, Tung Mai, Nedim Lipka, Gang Wu, Eunye Koh, and Nesreen Ahmed, <a href="#">link</a> | <i>ICML 2022</i>    |
| <b>Beyond Perturbation Stability: LP Recovery Guarantees for MAP Inference on Noisy Stable Instances</b>                 |                     |
| with Hunter Lang, David Sontag, and Aravindan Vijayaraghavan, <a href="#">link</a>                                       | <i>AISTATS 2021</i> |
| <b>Improved Guarantees for k-means++ and k-means++ Parallel</b>  |                     |
| with Konstantin Makarychev and Liren Shan, <a href="#">link</a>  | <i>NeurIPS 2020</i> |

## OTHER PUBLICATIONS

|   |                          |
|---|--------------------------|
| <b>Online Adaptive Mahalanobis Distance Estimation</b>                          |                          |
| with Lianke Qin and Zhao Song, <a href="#">arXiv link</a>                       | <i>IEEE BigData 2023</i> |
| <b>Adaptive and Dynamic Multi-Resolution Hashing for Pairwise Summations</b>    |                          |
| with Lianke Qin, Zhao Song, Zhaozhuo Xu, and Danyang Zhuo, <a href="#">link</a> | <i>IEEE BigData 2022</i> |

## PATENT

|   |                       |
|---|-----------------------|
| <b>Online Inference and Learning for Nonsymmetric Determinantal Point Processes</b>                       | 2022                  |
| with Ryan Rossi, Zhao Song, Anup Rao, Tung Mai, Nedim Lipka, Gang Wu, and Eunye Koh, <a href="#">link</a> | <i>Filed at USPTO</i> |

## AWARDS & RESEARCH GRANTS

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|---|------|
| <b>Adobe Research Gift Grant (\$20,000)</b>   | 2022 |
| <b>Peter and Adrienne Barris Outstanding Teaching Assistant Award</b> , Northwestern, <a href="#">press release</a> | 2022 |
| <b>Charnpak Scholarship for Research Internship</b> , Government of France  | 2017 |
| <b>Academic Excellence Award</b> , IIT Kanpur   | 2015 |
| <b>National Initiative on Undergraduate Science Scholarship</b> , HBCSE (TIFR)                                      | 2015 |
| <b>Gold Medallist</b> , Indian National Physics Olympiad, <i>National top 35</i>                                    | 2014 |

## CONFERENCE TRAVEL GRANTS

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| 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

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### 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

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### Conference Reviewer:

- Neural Information Processing Systems (NeurIPS) 2023, 2022, 2021
- International Conference on Machine Learning (ICML) 2024, 2023, 2022
- International Conference on Learning Representations (ICLR) 2024, 2023, 2022
- International Conference on Artificial Intelligence and Statistics (AISTATS) 2024, 2023

### 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 Activities ([ACA](#)), Card & Board Games Club ([CBG](#)), and Science Coffeehouse ([SCH](#)) (2016 - 17)

## INVITED TALKS AND POSTER SESSIONS

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

- IIT Kanpur Jun 2024, Kanpur
- IISc Bangalore, [YouTube link](#) May 2024, Bengaluru
- IIT Hyderabad 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