Praneeth Narayanamurthy

508 EEB, 3740 McClintock Avenue,
Los Angeles, CA 90089

Email: praneeth@usc.edu
Homepage: https://praneethmurthy.github.io

Education

Ph.D., Electrical Engineering, Iowa State University, 2016 – 2021.
Thesis: *Efficient Algorithms for Provable Subspace Learning and Tracking.*

B.Tech., Electrical and Electronics Engineering, National Institute of Technology Karnataka, 2014.
Thesis: *Estimation of Lightning Parameters using Genetic Algorithms.*

Research Interests

Machine Learning, Signal Processing, Matrix Factorization, Time-Series Analysis, Optimization

Employment

Vertex Postdoctoral Researcher: Sept 2021 – Present **University of Southern California**
Advisor: Prof. Urbashi Mitra
- Designing active sampling schemes for Source Localization, derivative-free function optimization

Research Assistant: Jan. 2016 – July 2021 **Iowa State University**
Advisor: Prof. Namrata Vaswani
- Designed and analyzed provable algorithms for online matrix factorization problems.

Research Intern: May 2019 – Aug. 2019 **Stanford Research Institute (SRI International)**
Mentor: Dr. Yi Yao and Dr. Ajay Divakaran
- Analysis of satellite time-series data through Gaussian Process Regression.

Project Assistant: July 2014 – Dec. 2015. **Indian Institute of Science**
Advisor: Prof. Chandra Sekhar Seelamantula
-Development of post-processing schemes for Text-to-Speech systems.

Selected Publications

Google Scholar Metrics (Jan. 2022): Citations=426, h-index=9, i10-index=9

1. **Praneeth Narayanamurthy**, Vahid Daneshpajooh and Namrata Vaswani, *Provable Subspace Tracking from Missing Data and Matrix Completion*, IEEE Transactions on Signal Processing (May. 2019)
(A part of this paper was a finalist for the Best Student Paper Award at SPARS-2019)

2. Seyedehsara Nayer, **Praneeth Narayanamurthy**, and Namrata Vaswani, *Phaseless PCA: Phaseless Low Rank Matrix Recovery from Column-wise Phaseless Measurements*, International Conference on Machine Learning (ICML) 2019, (Acceptance Rate 22.6%),
Long version in IEEE Transactions on Information Theory, Mar. 2020

3. **Praneeth Naryanamurthy** and Namrata Vaswani, *Nearly Optimal Robust Subspace Tracking*, International Conference on Machine Learning (ICML) 2018, Long talk (Top 8.6% of papers)
Long version in IEEE Journal on Selected Areas in Information Theory, Dec. 2020.

4. **Praneeth Narayanamurthy** and Namrata Vaswani, *Provable Dynamic Robust PCA or Robust Subspace Tracking*, IEEE Transactions on Information Theory (March 2019).

5. Namrata Vaswani, Thierry Bouwmans, Sajid Javed and **Praneeth Narayanamurthy**, *Robust PCA, Subspace Learning, and Tracking*, IEEE Signal Processing Magazine (July 2018).

6. Namrata Vaswani, and **Praneeth Narayanamurthy**, *Static and Dynamic Robust PCA and Matrix Completion: A review*, Proceedings of IEEE (Aug. 2018).
7. **Praneeth Naryanamurthy**, *Namrata Vaswani, and Aditya Ramamoorty*, *Federated Over-the-Air Subspace Learning from Incomplete Data*, `manuscript` (Feb. 2020).

Honors and Awards

Top Reviewer Award, ICML 2020.

Research Excellence Award, Iowa State University, 2019.

Finalist of Best Student Paper Award, SPARS, 2019.

Recepient of ICML travel grant – 2018, 2019.

Finalist of (Indian) National GE Edison Challenge – 2013.

Indian National Mathematical Olympiad Awardee – 2009.

National Certificate of Excellence for securing 100% grade in Mathematics and Sanskrit – 2008.

Skills

Proficient: MATLAB, LaTeX

Intermediate: Python (NumPy, Pandas, Tensorflow, Keras, PyTorch), C++, Git

Beginner: Julia, Scheme, Perl, Bash

Professional Service

I review articles for IEEE Transactions on Signal Processing, IEEE Transactions on Networking, IEEE Journal of Selected Topics in Signal Processing, IEEE Signal Processing and Wireless Communications, ICML, NeurIPS, AISTATS,...

Graduate Courses

Electrical Engineering: Probability and Random Processes, Convex Optimization, Detection and Estimation Theory, Principles of Data Science, Deep Machine Learning, Statistical Machine Learning

Computer Science: Design and Analysis of Algorithms, Machine Learning

Mathematics: Linear Algebra, Numerical Analysis-II, Real Analysis

Talks

1. *Nearly Optimal Robust Subspace Tracking*
   Dept. Mathematics, Iowa State University, Ames (April 2019)
   Microsoft Research India, Bangalore (Dec 2017)
   ECE Department, Indian Institute of Science, Bangalore (Dec 2017)
2. *Federated Over-Air Subspace Tracking from missing and Corrupted Data*
   CS Dept., Missouri S & T, Rolla (Nov. 2021).