

Arpita Gang

arpita.gang@rutgers.edu | (+1)716-906-1550 | linkedin.com/in/arpitagang | github.com/arpitagang19

PhD student working in the area of machine learning and optimization with 4 years of active research experience in big data and distributed learning along with expertise in modelling optimization problems and mathematical analysis of the solutions.

RESEARCH INTERESTS

Machine Learning, Distributed Learning, Signal Processing, Distributed Optimization.

SKILLS

Python, C, MATLAB, PyTorch, Numpy, LaTeX, MS Office, Git

EDUCATION

Rutgers University

Ph.D, ECE GPA: **3.92/4**

New Brunswick, NJ

2017-Present

Indraprastha Institute of Information Technology

M.Tech, ECE GPA: **9.44/10**

New Delhi, India

2014-2016

National Institute of Technology

B.Tech, ECE GPA: **9.16/10**

Assam, India

2009-2013

WORK EXPERIENCE

Rutgers University

Graduate Research Assistant

New Brunswick, NJ

July, 2018 – Present

- Working on developing communication efficient algorithms for distributed principal components analysis.
- Providing mathematical convergence guarantees of the algorithms.
- Performing experiments to simulate the real world setup using Python.

Rutgers University

Teaching Assistant

New Brunswick, NJ

Sept., 2017 – June, 2018

- Courses assisted: Digital Signal Processing, Principles of Electrical Engineering
- Conducted labs and recitations.

Indraprastha Institute of Information Technology

Research Assistant

New Delhi, India

July, 2016 – May, 2017

- Worked on source separation problem in single channel case using supervised machine learning and deep learning techniques.
- Focused on automating the models so that they require minimal parameter tuning.

Indraprastha Institute of Information Technology

Teaching Assistant

New Delhi, India

Aug., 2014 – June, 2016

- Courses assisted: Principles of Communication Systems, Modeling Complex Systems.
- Conducted labs and recitations.

Indian Institute of Technology

Summer Intern

Guwahati, India

May, 2012 – June, 2012

- Worked on voice activity detection problem
- Employed dictionary learning techniques for detecting human voice within various types of background noise.

Blue Danube Systems

Machine Learning Intern

New Jersey

Summer 2020

- Offer rescinded due to Covid-19

OTHER PROJECTS

- Feature prediction: Predicting missing features in a heterogenous dataset.
- Road Intersection Detection in outdoor environments using image and LIDAR data for autonomous vehicle exploration.
- Recovered partially sampled EEG signals using dictionary learning.
- Developed a text-dependent speaker verification system.

SELECTED COURSEWORK

Convex Optimization, Compressive Sensing, Machine Learning, Stochastic Estimation and Control, Probability and Random Process, Quantum Information Science, Information Theory, Statistical Signal Processing, Linear Algebra, Reinforcement Learning

JOURNAL PUBLICATIONS

- **A. Gang**, W.U. Bajwa, “Distributed Principal Component Analysis: An Exact and Linearly Converging Algorithm”, *in preparation, tentative date Apr. 2021*.
- B. Xiang, **A. Gang** and W. U. Bajwa, “Distributed Principal Subspace Analysis for Partitioned Big Data: Algorithms, Analysis, and Implementation”, arXiv preprint arXiv:2103.06406, Mar 2021.
- **A. Gang**, W.U. Bajwa, “A Linearly Convergent Algorithm for Distributed Principal Component Analysis”, arXiv preprint arXiv:2101.01300, Jan 2021.
- Z. Yang, **A. Gang** and W. U. Bajwa, “Adversary-Resilient Distributed and Decentralized Statistical Inference and Machine Learning: An Overview of Recent Advances Under the Byzantine Threat Model”, in IEEE Signal Processing Magazine, vol. 37, no. 3, pp. 146-159, May 2020.

CONFERENCE PUBLICATIONS

- **A. Gang**, H. Raja and W. U. Bajwa, “Fast and Communication-efficient Distributed PCA”, 2019 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP), Brighton, United Kingdom, 2019, pp. 7450-7454.
- **A. Gang**, P. Biyani, A. Soni “Towards Automated Single Channel Source Separation Using Neural Networks”, Proc. Interspeech 2018, 3494-3498.
- **A. Gang**, P. Biyani “On Discriminative Framework for Single Channel Audio Source Separation”, Proc. Interspeech 2016, 565-569.
- R. Ahuja, **A. Gang**, P. Biyani and S. Prasad, “A fast converging method for common mode sensor based impulse noise cancellation for downstream VDSL”, 2016 24th European Signal Processing Conference (EUSIPCO), Budapest, 2016, pp. 310-315.

RELEASED CODE

- **A. Gang**, W.U. Bajwa, “Codebase – A Linearly Convergent Algorithm for Distributed Principal Component Analysis”, GitHub Repository, <https://github.com/INSPIRE-Lab-US/DSA-Distributed-PCA>, Jan 2021.

MISCELLANEOUS

- Silver Medal in B.Tech, 2013.
- Google Travel Grant for INTERSPEECH 2016.
- Awarded the AnitaB GHC scholarship to attend the GHC 2020.
- Personal Blog: musingsbyarpita.com
- Organizer of Signal and Information Processing seminars in ECE department at Rutgers University from Sept 18-Apr. 19
- Reviewer for International Conference on Acoustics, Speech and Signal Processing (ICASSP), 2019
- Reviewer for Transaction of Signal Processing
- Reviewer for Transaction of Signal and Information Processing over Networks