

AMEYA ANJARLEKAR

Urbana, IL

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[Google Scholar](#)

Education

University of Illinois at Urbana-Champaign

PhD in Electrical and Computer Engineering; GPA: 3.94/4

Research Advisor: R. Srikant

(08/2022-present)

Indian Institute of Technology, Bombay

Bachelor of Technology in Electrical Engineering (with a minor in Computer Science); CPI: 9.64/10

Mumbai, India

(08/2017-05/2021)

Key Publications

- [Generalized Fractional Ambiguity Function and Its Applications](#). Circuits Systems & Signal Processing, Springer
- [Generalized Fractional Matched Filtering and its Applications](#), National Conference on Communications, 2020
- [Striking a Balance: An Optimal Mechanism Design for Heterogenous Differentially Private Data Acquisition for Logistic Regression](#). (submitted to ICML 24)
- [A weighted generalized coherence approach for sensing matrix design](#)(Preprint)

Awards and Achievements

- Awarded **Undergraduate Research Award (URA-01)** by IIT Bombay for innovative research contribution
- Presented with **Institute Technical Special Mention** for contributing to the technical sphere of IIT Bombay
- Received **IRCC award** from IIT Bombay for contribution to research in the field of Radar Signal Processing
- Completed 1 year rigorous **National Cadet Corps** (youth wing of the **Indian Army**) training

Industrial Experience

Quadeye Securities

(06/2021 - 06/2022)

Quantitative Researcher

Gurgaon, India

- Developed arbitrage-based strategies to formulate high-frequency trading algorithms in the derivatives segment
- Leveraged naive ML-based analysis and statistical techniques to design trading strategies leading to a 20% increase in Fill ratio and an increase in Sharpe ratio from 4 to 5

Daikin Industries

(06/2020 - 07/2020)

Machine Learning Research Scientist Intern

Osaka, Japan

- Achieved 70% video data compression by developing a Hitomi Camera-inspired image processing algorithm
- Highlighted around 60% cost-saving after using the compression algorithm by performing economic analysis

Research Experience

Mechanism Design for Heterogeneous Differentially Private Data Acquisition

(08/2022-present)

- Introduced an innovative payment mechanism that incentivizes privacy-sensitive data providers to contribute their data for machine learning (ML) model training while ensuring that the data remains differentially private
- Formulated and optimized an objective that appropriately trades off between getting better classification accuracy for the machine learning model and reducing the payments made to the data providers

Sensing Matrix Design for Group Testing

(08/2020 - 10/2021)

- Created and implemented an optimized binary sensing matrix using an innovative weighted generalized coherence-based metric for efficient group testing of COVID-19 resulting in better prediction accuracy

IIT Bombay Mars Rover Team

(08/2018 - 12/2019)

- Formulated an object detection AI framework using Python required for the autonomous operations of the Mars rover robot by developing a computer vision algorithm using transfer learning resulting in 93% accuracy
- Collaborated with other sub-teams for smooth integration of our deep learning model with the robotic interface

Other Projects

- **VAE-GANs for Compressive Medical Image Recovery:** Implemented a generative AI model using Pytorch for probabilistic compressive image recovery of undersampled bio-medical images
- **Compressed Sensing using Deep Image Prior:** Used sampling and rectified sparse Bayesian based learning techniques for training machine learning model which was then used as a prior for compressed sensing

Technical Skills and Interests

Skills: Statistical Learning, Data Structures, Data Science, Artificial Intelligence, Pattern Recognition, Statistics

Tools: Python, C, C++, ROS, PyTorch, Pandas, Tensorflow, Bash, Git, Matlab, R, Keras, Shell, VHDL, Scikit

Research Interests: Differential Privacy, Game Theory, Deep Learning, Machine Learning, Computer Vision