

Sourav Sahoo

Indian Institute of Technology Madras
Email \diamond Website \diamond Google Scholar \diamond Github

Education

Dual Degree (B.Tech & M.Tech) in Electrical Engineering

Indian Institute of Technology, Madras

Advisor: [Prof. Abhishek Sinha](#)

Thesis: The k -experts Problem.

July 2017 - July 2022

CGPA: 9.56/10.00

Publications and Preprints

- (P1) Online Subset Selection using α -Core with no Augmented Regret.
S. Sahoo, S. Chaudhary, S. Mukhopadhyay, and A. Sinha.
Under Review.[\[Preprint\]](#)
- (C3) Distributed Online Optimization with Byzantine Adversarial Agents.
S. Sahoo, A. Gokhale, and RK Kalaimani.
American Control Conference (ACC), 2022.[\[Paper\]](#)
- (C2) k -experts - Online Policies and Fundamental Limits
S. Mukhopadhyay, **S. Sahoo**, and A. Sinha.
International Conference on Artificial Intelligence and Statistics (AISTATS), 2022.[\[Paper\]](#)[\[Code\]](#)
- (C1) A Segment Level Approach to Speech Emotion Recognition Using Transfer Learning
S. Sahoo, P. Kumar, B. Raman, and PP Roy.
Asian Conference on Pattern Recognition (ACPR), 2019.[\[Paper\]](#)[\[Supplementary\]](#)[\[Poster\]](#)[\[Code\]](#)
- (W1) Multi-Modal Detection of Alzheimer's Disease from Speech and Text.
A. Mittal*, **S. Sahoo***, A. Datar*, J. Kadiwala*, H. Shalu, and J. Mathew (* equal contribution)
International Workshop on Data Mining in Bioinformatics (BIOKDD), 2021.[\[Preprint\]](#).

Research Experience

Research Assistant

Indian Institute of Technology, Madras

May 2021 - Present

Guide: [Prof. Abhishek Sinha](#)

- Working on problems at the intersection of online learning, learning theory, and optimization.

Undergraduate Researcher

Indian Institute of Technology, Madras

May 2021 - Sept 2021

Guide: [Prof. Rachel Kalpana Kalaimani](#)

- Studied non-constrained, online distributed optimization in a multi-agent system in the presence of adversarial agents. We defined the notion of regret in the considered setting and proved it to be sublinear.

Undergraduate Researcher

Indian Institute of Technology, Madras

Sept 2020 - July 2021

Guide: [Prof. Kaushik Mitra](#)

- Developed a novel deep network, *LeRoSNet (Learning from Rolling Shutter Net)*, for high-speed video reconstruction from a single rolling shutter capture from a lensless camera.

Research Intern

Indian Institute of Technology, Roorkee

May 2019 - July 2019

Guide: [Prof. Balasubramanian Raman](#)

- Proposed a novel deep learning model that predicts emotion for multiple segments of a single audio clip and utilizes transfer learning to improve performance.

Professional Experience

Quantitative Research Analyst

JPMorgan Chase & Co.

July 2022 - Present

Mumbai, India

Data Science Intern

Gramophone - Transforming Agriculture

Dec 2019 - Jan 2020

Bengaluru, India

Selected Projects

SVRG-SO: SVRG for Stochastic Optimization

Stochastic Optimization Final Project

Mar 2022 - May 2022

- Adapted the stochastic variance reduced gradient (SVRG) optimization algorithm for stochastic optimization. Conducted theoretical analysis to recover optimal convergence rate for the problem setting. [\[Technical Report\]](#)

Stochastic Mirror Descent in Overparameterized Models

Convex Optimization Term Paper

June 2020 - July 2020

- Designed novel experiments to prove the theoretical results on convergence and implicit regularization for overparameterized linear regression models and reproduced the experimental results for deep neural networks. [\[Technical Report\]](#)[\[Code\]](#)

Awards and Honors

Awarded **Caltech Summer Undergraduate Research Fellowship (SURF)** in 2020 (rescinded).

Selected to attend **Google Research India AI Summer School**, 2020.

All India Rank 584 among 200,000 candidates in JEE Advanced 2017.

All India Rank 49 among 1.5 million applicants in JEE Mains 2017.

Gold Medal in Indian National Physics Olympiad, 2017 and was offered provisional admission in Chennai Mathematical Institute (CMI).

All India Rank 18 in Kishore Vaigyanik Protsahan Yojana, 2015 and was offered provisional admission with a fellowship in Indian Institute of Sciences (IISc), Bangalore.

Certificate of Merit for promising performance in Indian National Mathematical Olympiad, 2015.

Coursework and Technical Skills

Courses: Applied Linear Algebra, Convex Optimization, Estimation Theory, Advanced Probability Theory, Distributed Optimization, Information Theory, Theoretical Machine Learning, Linear Optimization, Stochastic Optimization

Programming Languages: Python, C++

Software & Libraries: Tensorflow, PyTorch, Numpy, CVX, \LaTeX

Teaching

Teaching Assistant for introductory programming class for first-year students.

Spring 2022

Teaching Assistant for introductory probability class for graduate students.

Fall 2021

Teaching volunteer at KV-IIT for science and mathematics.

2017 – 2018

Online tutor for physics and mathematics for JEE aspirants at [Melvano](#).

2017 – 2018

Professional Services

Assisted reviewing for COMSNETS 2022, AISTATS 2022.