

# Sourav Sahoo

Operations Research Center, Massachusetts Institute of Technology

[Email](#) ♦ [Website](#) ♦ [Google Scholar](#) ♦ [Github](#)

## Education

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### Doctor of Philosophy in Operations Research

Massachusetts Institute of Technology

Advisor: [Prof. Negin Golrezaei](#)

Sept. 2023 - Present

GPA: 5.0/5.0

### 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

GPA: 9.56/10.00

## Publications and Preprints

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(P2) Bidding in Uniform Price Auctions for Value Maximizing Buyers.

N. Golrezaei and **S. Sahoo**.

*Under Review.*[\[Preprint\]](#)[\[Code\]](#)

(P1) Online Subset Selection using  $\alpha$ -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

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### Research Assistant

*Indian Institute of Technology, Madras*

May 2021 - Feb 2023

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.

## Industry Experience

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### Quantitative Research Analyst

*JPMorgan Chase & Co.*

July 2022 - July 2023

*Mumbai, India*

### Data Science Intern

*Gramophone - Transforming Agriculture*

Dec 2019 - Jan 2020

*Bengaluru, India*

## Selected Projects

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### 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

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Awarded **Caltech Summer Undergraduate Research Fellowship (SURF)** in 2020 (rescinded).

**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.

## Skills

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**Languages:** *Fluent:* English, Hindi. *Native:* Odia.

**Programming:** Python, C++

**Software & Libraries:** Tensorflow, PyTorch, CVX,  $\LaTeX$

## Teaching

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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

## Presentations and Talks

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*Bidding in Uniform Price Auctions for Value Maximizing Buyers.*

– INFORMS Manufacturing and Service Operations Management (MSOM) Conference, July 2024, Minneapolis, MN.

– INFORMS Revenue Management and Pricing (RMP) Section Conference, July 2024, Los Angeles, CA.

## Service and Outreach

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Reviewer for IEEE Transactions on Automatic Control.

## References

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**Prof. Negin Golrezaei**

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Massachusetts Institute of Technology  
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**Prof. Abhishek Sinha**

School of Technology and Computer Science  
Tata Institute of Fundamental Research  
`abhishek.sinha@tifr.res.in`