Sudeep Salgia

Fifth Year PhD candidate
Electrical and Computer Engg. Dept.
Cornell University

317 Rhodes Hall
Cornell Univ., Ithaca, NY - USA, 14850
☎ *+1-607-379-8156*
✉ *ss3827@cornell.edu*
🖝 *https://sudeepsalgia.github.io/*

Research Interests

I have been working on sequential learning problems arising in stochastic optimization, distributed learning, bandits, bayesian optimization, and active online learning. My research focuses on establishing fundamental limits on feasible performance and developing machine learning algorithms that achieve or approach the performance limits under practical constraints like computation complexity and communication costs.

Education

Aug'18-Present (Expected graduation: Aug'23)	**Cornell University**. PhD Electrical and Computer Engineering Advisor: Prof. Qing Zhao CGPA 4.18/4.0
July'14-May'18	**Indian Institute of Technology Bombay**. Bachelor of Technology in Electrical Engineering (with Honors) Minor in Computer Science CGPA 9.74/10

Publications

1. Disagreement-based Active Learning in Online Settings [Paper]
   Boshuang Huang, **Sudeep Salgia**, Qing Zhao
   IEEE Transactions on Signal Processing, 2022

2. A Domain-Shrinking based Bayesian Optimization Algorithm with Order-Optimal Regret Performance [Paper]
   Sudeep Salgia, Sattar Vakili, Qing Zhao
   Neural Information Processing Systems (NeurIPS), 2021

3. An order-optimal adaptive test plan for noisy group testing under unknown noise models [Paper]
   Sudeep Salgia, Qing Zhao
   International Conference on Acoustics, Speech and Signal Processing (ICASSP), 2021

4. Stochastic Coordinate Minimization with Progressive Precision for Stochastic Convex Optimization [Paper]
   Sudeep Salgia, Qing Zhao, Sattar Vakili
   International Conference on Machine Learning (ICML), 2020

5. Stochastic Gradient Descent on a Tree: an Adaptive and Robust Approach to Stochastic Convex Optimization [Paper]
   Sattar Vakili, **Sudeep Salgia**, Qing Zhao

Annual Allerton Conference on Communication, Control and Computing, 2019

6. On Bandlimited Spatiotemporal Field Sampling with Location and Time Unaware Mobile Sensors [Paper]
Sudeep Salgia, Animesh Kumar
International Conference on Acoustics, Speech and Signal Processing (ICASSP), 2018

Preprints and Submissions

1. Distributed Linear Bandits under Communication Constraints [Preprint]
Sudeep Salgia, Qing Zhao
Submitted to International Conference on Artificial Intelligence and Statistics (AISTATS), 2023

2. Collaborative Learning in Kernel-based Bandits [Preprint]
Sudeep Salgia, Sattar Vakili, Qing Zhao
Submitted to International Conference on Artificial Intelligence and Statistics (AISTATS), 2023

3. A Communication-Efficient Adaptive Algorithm for Federated Learning under Cumulative Regret
Sudeep Salgia, Karthik Murthy, Qing Zhao, Tamir Gabay, Kobi Cohen
Submitted to International Conference on Acoustics, Speech and Signal Processing (ICASSP), 2023

4. Provably and Practically Efficient Neural Contextual Bandits [Preprint]
Sudeep Salgia, Sattar Vakili, Qing Zhao
Submitted to Association for the Advancement of Artificial Intelligence (AAAI), 2023

5. As Easy as ABC: Adaptive Binning Coincidence Test for Uniformity Testing [Preprint]
Sudeep Salgia, Qing Zhao, Lang Tong
Under submission to IEEE Transactions on Signal Processing

6. Noisy Group Testing under Unknown Noise Models
Sudeep Salgia, Qing Zhao
Under submission to IEEE Transactions on Signal Processing

Internship

May'21-Aug'21 **Machine Learning Solutions Lab, Amazon,** *Applied Scientist Intern*
Identifying and building ML solutions to address business problems of clients
Hosted by Daniel Horowitz and Emmanuel Salawu

- Critically evaluated the efficiency of *Amazon Personalize* by comparing it against state-of-the-art recommendation models to help design a User Personalized Recommendation system for a leading news organization
- Assessed efficacy and fit of various ML approaches (*Amazon Lookout for Equipment*, *Amazon Forecast* and custom models) to be used for Predictive Maintenance in drug manufacturing

Scholastic Achievements and Awards

2018 Awarded Jacobs Scholar Fellowship at Cornell University

2018 Silver Medalist in the Class of 2018, IIT Bombay

2014 Secured All India Rank 214 in JEE Advanced 2014 among 150,000 selected candidates from over all India

2017	Selected for the final round of Honda YES Scholarship, among top 20 students in India on the basis of views on and contribution to eco-technology
2015	Best Application Award for our project on Sign Language to Text Converter at the Tech & RnD Expo, IIT Bombay
2005-2012	Stood among Top 100 in India in various Math, Science and Cyber Olympiads

Teaching and Community involvement

Teaching — **Teaching Assistant**.
- Statistical Inference and Decision, Introduction to Probability (*Cornell University*)
- Linear Algebra (*IIT Bombay*)

Reviewing — Reviewer for ICML'21,'22, NeurIPS'21,'22 (In top 10% of reviewers), AISTATS'22,'23, ICLR'23, IEEE/ACM Transactions on Networking

Mentorship — **Department Academic Mentor**, *IIT Bombay*.
- Selected among 22 students based on interpersonal skills and academic performance to mentor students with academic backlogs and to help them address concomitant social problems

Volunteer — **Abhyasika**, *IIT Bombay*.
- Abhyasika is an initiative that runs tutorials for underprivileged children and supports them in their education

Skills and Coursework

Math — Measure Theory, Probability, Linear Algebra, Statistical Learning Theory, Convex Optimization, Real Analysis, Topology

EE — Optimal Control, Stochastic Systems : Estimation and Control, Information Theory, Signal Processing

Programming — Python, MATLAB, LaTeX

Co-Curricular Activities

- Member of the Cornell Cricket Team
- Secured sixth position in a global Creative Writing competition in Mood Indigo 2014 - the cultural fest of IIT Bombay
- Amongst top active contributors at Math StackExchange (top 8% in 2022)
- Was a Moderator at Brilliant.org, a community based platform for development of skills in Math and Science for international competitive exams, for two years
- Articles published in various print media (English and Hindi)
- Hobbies: Painting, Sketching, Badminton, Cricket

References

Up to four references available on request