SANIT GUPTA

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EDUCATION

Indian Institute of Technology Bombay, *Mumbai, India* — *Jul '16 - Jul '20*
B.Tech in Mechanical Engineering, Minor in Computer Science | Major GPA: 8.6/10.0, Minor GPA: 9.5/10.0

PROFESSIONAL EXPERIENCE

Optiver — *Sep '20 - Present*
Trader — *Amsterdam, The Netherlands*

- Market making options on the Euro Stoxx 50 Index (Europe's leading blue-chip index)
- Managed a trading book; acting on flow of data from various sources to make trading decisions
- Developed and backtested automated strategies for trading spreads between European and American markets

Max Planck Institute for Intelligent Systems — *May '19 - Jul '19*
Research Intern under Falk Lieder — *Tübingen, Germany*

- Developed multiple computational models to reverse engineer human learning mechanisms
- Designed **bayesian reinforcement learning** agents controlling reward signal to reflect human biases
- Trained & evaluated several candidate models of planning on various metrics of closeness to humans

Lymbyc — *May '18 - Jul '18*
Data Science Intern — *Bangalore, India*

- Built an **ML pipeline** to classify e-commerce products, used **active learning** to incorporate feedback
- Impact: Active learning by **Pool-based Entropy Sampling** increased accuracy from **89.2%** to **98%**

PREPRINTS AND PUBLICATIONS

- PAC Mode Estimation using PPR Martingale Confidence Sequences — Submitted to **NeurIPS 2021**
  *S. Jain, **S. Gupta**, D. Mehta, I. Nair, R. Shah, J. Vora, S. Khyalia, S. Das, V. Ribeiro, S. Kalyanakrishnan*
- An India-specific Compartmental Model for Covid-19: Projections and Intervention Strategies — **arXiv**
  ***S. Gupta** et al.*
  Worked in coordination with ICMR; results presented to the Karnataka CM and Government of India officials
- How do people learn how to plan? — **CCN 2019**
  *Y.R. Jain, **S. Gupta**, V. Rakesh, P. Dayan, F. Callaway, F. Lieder*

RESEARCH EXPERIENCE

Developing and Analyzing Algorithms for the Multi-Armed Bandit — *Aug '18 - Apr '20*
Guide: Shivaram Kalyanakrishnan — *Dept. of Computer Science & Engineering, IIT Bombay*

- Developed and analyzed novel algorithms for the regular bandit setting and a "batch-sampling" setting
- Empirically demonstrated superior performance of these algorithms over baselines in both settings

PAC-Optimal Reinforcement Learning with a simulator — *Sept '19 - Apr '20*
Guide: Shivaram Kalyanakrishnan — *Dept. of Computer Science & Engineering, IIT Bombay*

- Designed sample efficient algorithms inspired from literature on the best arm identification problem in bandits
- To this end, designed Markov chain sampling strategies for quick and accurate policy evaluation

Parallel Computing for the Laplace Equation on Unstructured Grids — *May '17 - Jul '18*
Guide: Shivasubramanian Gopalakrishnan — *Dept. of Mechanical Engineering, IIT Bombay*

- Developed a distributed solver for the Laplace's equation for arbitrarily shaped three dimensional objects
- Achieved upto **14x** speed-up over the serial solution, prepared a manuscript to be submitted for publication

SKILLS AND RELEVANT COURSEWORK

Skills	• **Programming Languages:** C++, Python, R, mySQL, Solidity, webPPL, HTML, CSS, LaTeX • **Libraries/Packages:** Keras, PyTorch, OpenMP, MPI, Tensorflow, SciKit Learn, Cuda
Key Courses	• Advances in Intelligent & Learning Agents, Machine Learning, Stochastic Models, High Performance Computing, Data Structures & Algorithms, IEOR, Optimization, Data Analysis

MISCELLANEOUS

- Awarded the **Undergraduate Research Award** in recognition of exceptional research *'19*
- Represented IIT Bombay at the **6th Annual Inter-IIT Tech Meet** at IIT Madras *'18*
- Ranked **1st (out of 147)** in IITB in **American Express's AnalyzeThis**, a data science competition *'17*