

Education

2019–2023 **Indian Institute of Technology Delhi**
B.TECH ELECTRICAL ENGINEERING
GPA: **9.381**/10 (Department Rank 5)
Specialization in Cognitive and Intelligent Systems (**AI Focus Area**)
Courses: Reinforcement Learning and Stochastic Control; Online Learning, Bandits and Optimization; Convex Optimization; Concentration Inequalities; Machine Learning; Probability and Stochastic Processes; Math for ML

Experience

Aug 2023– **Microsoft Research, Bangalore**
Present RESEARCH INTERN
Developing new linear bandit models better suited to industrial application in advertising and developing algorithms with theoretical guarantees and empirical performance.

May 2023– **Indian Institute of Science, Bangalore**
Aug 2023 RESEARCH ASSISTANT
Worked on Participatory Budgeting with Bandit Feedback developing new models at the intersection of Bandit Learning and Computational Social Choice.

2019–2023 **Indian Institute of Technology Delhi**
UNDERGRADUATE
BTech Thesis [Part 1](#) - Inverse Reinforcement Learning with Constraint Recovery and [Part 2](#) - Linear Rotting Bandits [won **Best BTech Thesis Award**]
Teaching assistant for the graduate course on Reinforcement Learning and Stochastic Control.

Summer 2022 **Mastercard AI Garage, Gurgaon**
ARTIFICIAL INTELLIGENCE INTERN
Built a semi-supervised deep learning pipeline for fraud detection in credit card transaction.

Publications

- 1 [Nirjhar Das](#) and Arpan Chattopadhyay. “**Inverse Reinforcement Learning With Constraint Recovery**”. **Best Paper Award** in 10th International Conference on Pattern Recognition and Machine Intelligence
[Paper](#) , [PReMI 2023](#)
- 2 Mustafa Chasmai, [Nirjhar Das](#), Aman Bhardwaj, Rahul Garg. “**A View Independent Classification Framework for Yoga Postures**”. Springer Nature Computer Science, Vol 3.
[Paper](#) , [SNCS Sept 2022](#)
- 3 Smriti Chawla, Anja Rockstroh, Melanie Lehman, Elca Ratther, Atishay Jain, Anuneet Anand, Apoorva Gupta, Namrata Bhattacharya, Sarita Poonia, Priyadarshini Rai, [Nirjhar Das](#), Angshul Majumdar, Jayadeva, Gaurav Ahuja, Brett G. Hollier, Colleen C. Nelson and Debarka Sengupta. “**Gene expression based inference of cancer drug sensitivity**”. Nature Communications, 13.
[Paper](#) , [Nat. Comm. Sept 2022](#)

Working Papers

- “Contextual Linear Bandits with Hybrid Payoff” with Gaurav Sinha
- “Experimental Design for Reinforcement Learning with Human Feedback” with Souradip Chakraborty

Honors and Awards

- 2023 **Best BTech Project Award:** Won the award among 160+ students in the EE department for research carried out in BTech Project.
- 2023 **Amazon ML Challenge 2023:** Achieved 6th rank out of 5000+ teams by building a deep-learning model for the prediction of package length from item description.
- 2022 **Research Week with Google 2023:** Selected to attend the conference.
- 2020 **IIT Kanpur Cybersecurity Hackathon 2020:** Achieved 3rd rank out of 1200+ teams by building a machine learning pipeline for botnet detection.
- 2019–2023 **Top 7% Merit Award:** Achieved in 4 semesters out of 8 semesters.
- 2019 **ISC (Indian School Certificate):** Achieved 2nd rank all over India out of 100000 students in Class XII Board Exam with 499/500 marks
- 2019 **Swami Vivekananda Scholarship:** Awarded by *Hon'ble Chief Minister* of West Bengal for excellent performance in Class XII Board Exam.
- 2019 **JEE Advanced:** Achieved rank of 721 out of 150000 students
- 2017–2018 **KVPY (Kishore Vaigyanik Protsahan Yojana):** Selected for Scholarship by *Dept of Science and Technology, Govt of India* and achieved ranks 94 and 175 in 2018 and 2017 respectively

Skills

Python, C, C++, Java

Programming Languages

Linux, Git, L^AT_EX

Tools and Systems

Portable Batch System (PBS)

High Performance Computing

Tensorflow, Keras, Pytorch

Deep Learning

NumPy, SciPy, Matplotlib, Scikit Learn, Pandas, Cvxpy

Data Science Libraries

Academic Projects

- Oct 2023– Present **Experimental Design for RLHF** with Souradip Chakraborty, University of Maryland
Working to develop theoretical framework for choosing prompts for RLHF training of LLMs from a given set of prompts · Aim to develop efficient and optimal algorithms for the problem.
- May 2023– Aug 2023 **Participatory Budgeting with Bandits** with Prof. Siddharth Barman, IISc Bangalore
Developed new model for participatory budgeting combining ideas from bandit literature and computational social choice · Performed experiments on real world datasets · Draft in progress.
- Sept 2022– Mar 2023 **Linear Rotting Bandits** with Prof. Arpan Chattopadhyay, IIT Delhi
Extended rotting bandits to the linear reward · Developed an algorithm that outperforms existing non-stationary linear and stochastic rotting bandit algorithms empirically.
- Dec 2021– Jul 2022 **Inverse RL with Constraint Recovery** with Prof. Arpan Chattopadhyay, IIT Delhi
Formulated the problem of simultaneously recovering the constraint and the reward from expert demonstration in CMDP · Developed a convex objective using principle of Maximum Entropy · Developed an algorithm based on primal-dual framework.
- Mar 2021– Jul 2021 **View Independent Yoga Classification** with Prof. Rahul Garg, IIT Delhi
Built a yoga classifier based on human body keypoints with over 98% accuracy · Developed a robust framework for model evaluation that focuses on model generalization capacity · Showed that our classifier is more robust compared to other existing methods.

Spring 2022 **Resource Monitoring and Scheduling Course Project** Prof. Smruti Sarangi, IIT Delhi
Created system calls for listing the running processes, memory available, and the number of context switches per process · Implemented scheduling algorithms FCFS, MLQ and DMLQ and obtained the process statistics

Academic Service and Extracurricular Activities

- **Teaching assistant** for the graduate course on Reinforcement Learning and Stochastic Control.
- **Student Mentor** for 5 freshmen. Helped them transition to college and ensured their professional and personal growth.
- **Academic Mentor** for the course Engineering Mechanics. Helped first year students in understanding the course materials and in problem solving.
- **Student Journalist** for the Board for Student Publication reporting on latest developments on the campus that affected the community.
- **Executive** for the Electrical Engineering Society. Organized various events for the benefit of the EE students.
- **Teaching volunteer** for National Service Scheme from 2019–2022. Taught mathematics and science to underprivileged children from slums of Delhi.