Nirjhar Das

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🏠 *Personal Webpage*

Education

2024– Present — **Indian Institute of Science, Bangalore**
M.Tech (Research) Computer Science

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 2024– Present — **Indian Institute of Science, Bangalore**
Research Student
Advisor - Prof. Siddharth Barman
Working on problems at the intersection of Learning Theory, Game Theory and Computational Social Choice.

Aug 2023– June 2024 — **Microsoft Research, Bangalore**
Research Intern
Manager - Dr. Gaurav Sinha
Worked on new bandit models better suited to industrial application in advertising and developed algorithms with theoretical guarantees and empirical performance.

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, Gugaon**
Artificial Intelligence Intern
Built a semi-supervised deep learning pipeline for fraud detection in credit card transaction.

Publications

1 Nirjhar Das, Gaurav Sinha. "**Linear Contextual Bandits with Hybrid Payoff: Revisited**". *Accepted* in European Conference on Machine Learning and Principles and Practice of Knowledge Discovery in Databases 2024
Paper 🗗 , ECML PKDD 2024

2 Nirjhar Das, Souradip Chakraborty, Aldo Pacchiano, Sayak Ray Chowdhury. "**Provably Sample Efficient RLHF via Active Preference Optimization**". *Accepted* in ICML 2024 Workshop on Theoretical Foundations of Foundation Models
Paper 🗗 ICML 2024 Workshop

3 Ayush Sawarni, <u>Nirjhar Das</u>, Siddharth Barman, Gaurav Sinha. "**Optimal Regret with Limited Adaptivity for Generalized Linear Contextual Bandits**". *Under Review* in The Thirty-eighth Annual Conference on Neural Information Processing Systems
Paper ⧉ , NeurIPS 2024 (Under Review)

4 <u>Nirjhar Das</u> 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

5 Mustafa Chasmai, <u>Nirjhar Das</u>, Aman Bhardwaj, Rahul Garg. "**A View Independent Classification Framework for Yoga Postures**". Springer Nature Computer Science, Vol 3.
Paper ⧉ , SNCS Sept 2022

6 Smriti Chawla, Anja Rockstroh, Melanie Lehman, Ellca Ratther, Atishay Jain, Anuneet Anand, Apoorva Gupta, Namrata Bhattacharya, Sarita Poonia, Priyadarshini Rai, <u>Nirjhar Das</u>, 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

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, LaTeX	*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

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 alogrithms empirically.
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.