

Tanmay Goyal

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EDUCATION

Indian Institute of Technology, Hyderabad

Bachelor of Technology in Artificial Intelligence: Departmental Rank 2/30

CGPA: 9.55/10

2020-2024

RESEARCH EXPERIENCE

Microsoft Research India

Research Fellow

Aug. 2024 - Present

PUBLICATIONS

Efficient Algorithms for Logistic Contextual Slate Bandits with Bandit Feedback [🔗](#)

Tanmay Goyal, Gaurav Sinha

41st Conference on Uncertainty in Artificial Intelligence (UAI), 2025

Achieving Limited Adaptivity for Multinomial Logistic Bandits [🔗](#)

Sukruta Midigeshi, Tanmay Goyal, Gaurav Sinha

Reinforcement Learning Conference (RLC), 2025

RESEARCH PROJECTS

Efficient Algorithms for Logistic Contextual Slate Bandits with Bandit Feedback

Microsoft Research

Accepted at UAI '25 (Main Track): Advised by Dr. Gaurav Sinha

- Introduced efficient algorithms for Slate Bandits, where the arm-set is a product of several different item-sets.
- Showed that our algorithms are optimal and computationally efficient for a logistic reward model.

Achieving Limited Adaptivity for Multinomial Logistic Bandits

Microsoft Research

Accepted at RLC '25: Advised by Dr. Gaurav Sinha

- Introduced a *batched* and *rarely-switching* algorithm for Multinomial Logistic Bandits with theoretical guarantees.
- Reduced the number of policy updates from $O(T)$ to $O(\log \log T)$ and $\tilde{O}(\log T)$ respectively.

Quantum Query Complexity

IIT Hyderabad

Advised by Dr. Karteek Sreenivasaiah

Nov. 2023 - May 2024

- Attempted to upper bound the quantum query complexity for testing the unateness of a boolean function.
- Worked extensively with Learning Graphs and Span Programs.

Quantum Random Walks (QRW) for Model Checking

IIT Hyderabad

Advised by Dr. M.V. Panduranga Rao

Jan. 2024 - May 2024

- Attempted to perform a QRW on a directed weighted graph by combining the notions of a coined QRW for directed unweighted graphs and Szegedy's QRW for weighted undirected graphs.

Long Landing Analysis

IIT Hyderabad

Advised by Dr. Maunendra Desarkar, in collaboration with Honeywell USA and Honeywell India

Dec. 2023 - Jun. 2024

- Analyzed 250GB of publicly available data on the landing of 150K flights to predict long landings.
- Built Causality graphs to understand the causal factors for long-landings.

TEACHING

Teaching Assistant, IIT Hyderabad

Duties involved conducting tutorials and lectures, and assisting the professor in grading assignments and exams

- Programming for AI Mar. 2024 - May 2024
- Operating Systems - I Oct. 2023 - Dec. 2023
- Reinforcement Learning Jul. 2023 - Dec. 2023
- Deep Learning Jan. 2023 - May 2023
- Data Structures and Applications Jul. 2022 - Dec. 2022
- Introduction to Programming (C/C++) Nov. 2021 - Mar. 2022

KEY COURSES TAKEN

Artificial Intelligence: Machine Learning, Deep Learning, Reinforcement Learning, Online Learning and Bandits, Natural Language Processing, Bayesian Data Analysis, Robotics, Image and Video Processing, AI in Healthcare

Computer Science: Quantum Computing, Cryptology, Computational Number Theory, Probability in Computing, Data Structures and Algorithms, DBMS, Operating Systems, Computer Networks, Application of Markov Chains

Mathematics: Calculus, Matrix Theory, Tensors: Techniques and Algorithms, Convex Optimization, Applied Statistics, Time Series and Regression Analysis, Metric Spaces, Numerical Analysis, Differential Equations

Electrical Engineering: Information Theory, Linear Systems and Signal Processing, Control Systems

INDUSTRY EXPERIENCE

American Express

May 2023 - Jul. 2023

Analyst Intern

- Developed a model to assign lines for credit cards for high-earning prospects and consumers, alongside performing trend analysis for the same. Impacts a significant 1 million customers per month.

StoryXpress

May 2022 - Jul. 2022

Machine Learning Intern

- Worked on Video Super-Resolution to upscale videos on smartphone devices in real time to save network bandwidth.

SCHOLASTIC ACHIEVEMENTS

Academic Excellence Award: Highest CGPA in the Department of AI, IIT Hyderabad. 2023-2024

Google Research Week: Selected from amongst 5,000+ UG and PG students nationwide. 2024

JEE Advanced: All India Rank 645 amongst 250,000 candidates. 2020

JEE Mains: All India Rank 1078 amongst 1,000,000 candidates (top 0.09% percentile). 2020

BITSAT: Scored 400/450. Ranked in the top 235 amongst 325,000 candidates. 2020

TECHNICAL SKILLS

Programming: Python, C++, C, SQL, L^AT_EX

Tools/Frameworks: NumPy, Pandas, Matplotlib, Seaborn, PyTorch, TensorFlow, OpenCV

VOLUNTEERING

Volunteering 2020-2024

- **National Service Scheme:** Completed 120 hours as a volunteer, including teaching the underprivileged.
- **UG Buddy:** Sunshine, the Counselling Cell, IIT Hyderabad.
- **Career counselor:** Outreach Head, Office of Career Services, IIT Hyderabad.
- **JOSAA counselor:** Bakliwal Tutorials.

Teaching Intern, Lila Poonawalla Foundation

Curated lesson plans, teaching aids, and held lectures for grade 7 and 8 underprivileged girls

- Numeracy Module: English and Mathematics. Jan. 2017
- IT Literacy Module: MS-Word and MS-Excel. Nov. 2017

POSITIONS OF RESPONSIBILITY

Outreach Head: Office of Career Services, IIT Hyderabad Mar. 2023 - Apr. 2024

Content Head: ACM Student Chapter, IIT Hyderabad Mar. 2022 - Mar. 2023

Internship Coordinator: Office of Career Services, IIT Hyderabad Apr. 2022 - Mar. 2023

Curation and Content Coordinator: TEDxIITHyderabad May 2021 - May 2022

Ideation Manager: E-Cell, IIT Hyderabad May 2021 - May 2022

Core Member: Vibes, the Music Club | Lambda, the Software Dev Club May 2021 - May 2022

Licensee and Organizer: TEDxTheOrchidSchool 2019

EXTRACURRICULARS

Sports 2020-2024

- **National Sports Organization:** Completed 240 hours of training in Table Tennis.
- **Cricket:** Played in several tournaments throughout college and played at the school and club (district) level.
- Inter-IIT Tech Meet 12.0:** Represented IITH for two High-Prep Problem Statements. Dec. 2023
- Inter IIT Cultural Meet 6.0:** Represented IITH at the Just-A-Minute(JAM) Competition. Dec. 2023
- Guitar:** Played the guitar in several competitions and events. Won 3rd prize at Battle of the Bands. Mar. 2023