Sarvesh Gharat

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EDUCATION

IIT Bombay — Mumbai, In
PhD in Artificial Intelligence and Data Science — *Jul. 2022 – May 2027*

Vishwakarma Institute of Information Technology — Pune, In
BTech in Electronics and Telecommunication — *Aug. 2018 – May 2022*

RESEARCH INTERESTS

My research focuses on online learning, particularly multi-armed bandits and Markov decision processes (MDPs) for sequential decision-making. I'm also interested in multi-agent systems and currently work on inference-time algorithms along with the bandit theory.

EXPERIENCE

- **Summer Research Intern** — May 2025 – July 2025
  Adobe Research — *Host: Soumyabrata Pal, Ramasuri Narayanam*
  - Improved LLM reasoning under fixed compute constraints by developing a novel method to inject auxiliary information during sequential test-time scaling.
  - Designed and implemented an efficient, on-the-fly example selection strategy using embedding similarity, leading to more relevant in-context examples during inference.
  - Focused on designing inference-time techniques that enhance model responses without changing any underlying parameters.

  Patent Submitted/ Paper in Progress: Gharat, S., Pal, S., Narayanam. R., Adaptive Test-Time Decoding Framework with Dynamic Hint Injection

- **Student Researcher** — Oct 2024 – March 2025
  Google Deepmind — *Host: Aparna Taneja, Milind Tambe*
  - Quantified the impact of AI-scheduled interventions on beneficiary engagement and health knowledge in a large-scale maternal health program, analyzing data from thousands of participants.
  - Demonstrated statistically significant improvements in maternal health awareness through a comparative analysis of AI-targeted interventions versus control groups.
  - Improved reliability of survey-based insights by addressing noise and response variability, enabling statistically significant impact detection.

  Paper Accepted: Dasgupta, A.*, **Gharat, S.***, Madhiwalla, N., Hegde, A., Tambe, M., Taneja, A. AI-Targeted Calls Drive Measurable Improvements in Maternal Health, PAIS ECAI 2025

- **Research Assistant** — Aug 2021 – June 2022
  Tata Institute of Fundamental Research — *Host: Prof. Shriganesh Prabhu*
  - Designed optimization methods to estimate the refractive index of optically thin materials using Terahertz Time Domain Spectroscopy.
  - Implemented and benchmarked algorithms including Dual Annealing, SHGO, and Newton-Raphson to improve convergence stability.
  - Built a user-friendly Python library to support experimental analysis and make the refractive index estimation pipeline accessible for both researchers and educators.

SELECTED PUBLICATIONS

- **Gharat, S.**, Karamchandani, N. and Nair, J. Cost-Aware Best Arm Identification in Dueling Bandits: A fixed confidence approach to identify the Condorcet winner with a minimum cost, under review (2025)

- **Gharat, S.**, Yadav, A., Karamchandani, N., Nair, J. Representative Arm Identification: A fixed confidence approach to identify cluster representatives, ICASSP 2025

- **Gharat, S.**, Borthakur, A., Bhatta, G. Estimation of redshift and associated uncertainty of Fermi/LAT extragalactic sources with Deep Learning, MNRAS 2024

  Full publication list available at scholar.google.com/sarveshgharat

Invited Talks & Presentations

- *Cost-Aware Best Arm Identification in Dueling Bandits* — Cohere for AI Research Connections (2025), RL Reading Group (2025)
- *Estimating Redshifts of AGNs using Neural Networks* — IAU-IAA Astroinformatics Seminar (2024)
- Posters: IndoML 2024, ACM PIC 2024, Google Research Week 2024

Academic Service & Highlights

- **Reviewer/PC**: IEEE Transactions on Information Theory, IJCAI AI for Social Good 2025, AAMAS 2025
- **Selected for**: ACM CODS-COMAD PhD Clinic, ACM PIC 2024, Google Research Week (2024, 2025)
- **Kaggle**: Silver Medal – LLM Prompt Recovery Challenge (Ranked 79/2175)
- **Collaborations**: VaTEST, LOFAR2.0 Ultra Deep Observations, AI4Astro, MAASI GDM

Technical Skills

- **Programming**: Python, LaTeX, Apps Script
- **Libraries**: PyTorch, TensorFlow, NumPy, pandas, vLLM, Transformers
- **Tools**: Jupyter Notebook, Git, Docker, Google Cloud Platform, VS Code