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 alignment and inference-time algorithms for large language models.

Experience

Research Intern — May 2025 – Present
Adobe Research — *Bengaluru, In*

- Exploring inference-time alignment strategies for large language models, focusing on how example selection algorithms can guide model behavior without parameter updates.
- Investigating test-time scaling algorithms to improve model adaptability under computational constraints.
- Working toward building efficient inference pipelines that balance alignment quality with real-world latency and cost tradeoff.

Student Researcher — Oct 2024 – March 2025
Google Deepmind — *Bengaluru, In*

- Analyzed data from a large-scale maternal health program (mMitra) to evaluate how AI-scheduled phone calls affected beneficiary engagement and health knowledge.
- Conducted comparative analysis between recipients of AI-targeted calls and those without interventions, identifying measurable gains in awareness and health of the mothers.
- Improved reliability of survey-based insights by addressing noise and response variability, enabling statistically significant impact detection.

Research Assistant — Aug 2021 – June 2022
Tata Institute of Fundamental Research — *Mumbai, In*

- 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
- Dasgupta, A., **Gharat, S.**, Madhiwalla, N., Hegde, A., Tambe, M., Taneja, A. AI-Targeted Calls Drive Measurable Improvements in Maternal Health, under review (2025)
- **Gharat, S.**, Borthakur, A., Bhatta, G. Estimation of redshift and associated uncertainty of Fermi/LAT extragalactic sources with Deep Learning, MNRAS 2024
- **Gharat, S.**, Dandawate, Y. Galaxy classification: a deep learning approach for classifying Sloan Digital Sky Survey images, MNRAS 2022

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
- **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