

## EDUCATION

**Ph.D. CMInDS**, Indian Institute of Technology Bombay, GPA: 8.76/10.00

July 2022–

**Bachelor of Technology ECE**, Vishwakarma Institute of Information Technology, GPA: 9.29/10.00

June 2022

## BACHELOR'S THESIS

**Extraction of Refractive Index from Optically Thin Samples**

(At TIFR Mumbai) Jan 2022 — June 2022

- Responsible for designing an optimization algorithm to predict the refractive index of unknown materials using Terahertz Time Domain Spectroscopy.
- Implemented multiple optimization algorithms such as Dual Annealing, SHGO, Newton Raphson, etc
- Provided a full-fledged Python library that can be used for educational as well as research purposes

## PAPERS IN-REVIEW

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

## EXTENDED ABSTRACT

- Gharat, S.**, Borthakur, A. and Bhatta, G. Gamma Ray AGNs: Estimating Redshifts and Blazar Classification using traditional Neural Networks with smart initialization and self-supervised learning. NeurIPS ML4PS 2023

## PUBLICATIONS

- Mistry, P., Prasad, A., Maity, M., Pathak, K, **Gharat, S.**, Lekkas, G., Bhattarai, S., Kumar, D., Lissauer, J., Twicken, J., et. al. VaTEST III: Validation of 8 Potential Super-Earths from TESS Data. Publications of the Astronomical Society of Australia
- Bhatta, G., **Gharat, S.**, Borthakur, A. and Kumar, A. Gamma-ray Blazar Classification using Machine Learning with Advanced Weight Initialization and Self-Supervised Learning Techniques. Monthly Notices of Royal Astronomical Society
- Gharat, S.**, Borthakur, A. and Bhatta, G. Estimation of redshift and associated uncertainty of Fermi/LAT extra-galactic sources with Deep Learning. Monthly Notices of the Royal Astronomical Society, 527(3), pp.6198–6210
- Gharat, S.**, Bose, B., Borthakur, A. and Mazumder R., 2022. An Image Processing approach to identify solar plages observed at 393.37 nm by the Kodaikanal Solar Observatory. RAS Techniques and Instruments, 2(1), pp.393-397
- Mistry, P., Pathak, K., Prasad, A., Lekkas, G., Bhattarai, S., **Gharat, S.**, Maity, M., Kumar, D., Collins, K.A., Schwarz, R.P. et. al 2023. VaTEST. II. Statistical Validation of 11 TESS-detected Exoplanets Orbiting K-type Stars. The Astronomical Journal, 166(1), p.9.
- Pininti, V.R., Bhatta, G., Paul, S., Kumar, A., Rajgor, A., Barnwal, R. and **Gharat, S.**, 2023. Exploring short-term optical variability of blazars using TESS. Monthly Notices of the Royal Astronomical Society, 518(1), pp.1459-1471.
- Gharat, S.** and Dandawate, Y., 2022. Galaxy classification: a deep learning approach for classifying Sloan Digital Sky Survey images. Monthly Notices of the Royal Astronomical Society, 511(4), pp.5120-5124.
- Kulkarni, J.S., Cengiz, K. and **Gharat, S.**, 2021, March. Compact C-slot microstrip-fed planar antenna for wireless devices. In 2021 International Conference on Emerging Smart Computing and Informatics (ESCI) pp. 651-654. IEEE. .

## RESEARCH INTERNSHIPS

- Student Researcher, Google DeepMind**

October 2024–March 2025

Host: Dr. Aparna Taneja

- Research Assistant, TIFR Mumbai**

August 2021–June 2025

Host: Prof. Shriganesh Prabhu

## INVITED TALKS AND POSTER PRESENTATIONS

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- **Estimating Redshifts of gamma-ray AGNs and Blazar Classification using Neural Networks with smart initialization and self-supervised learning**  
IAU-IAA Astrostatistics and Astroinformatics seminars (Invited Talk)
- **Representative Arm Identification: A fixed confidence approach to identify cluster representatives**  
IndoML 2024 (Poster Presentation)  
ACM Pingala Interactions in Computing 2024 (Poster Presentation)  
Research Week with Google 2024 (Poster Presentation)

## OTHER DETAILS

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- In collaboration with
  - Validation of Transiting Exoplanets using Statistical Tools (VaTEST)
  - LOFAR2.0 Ultra Deep Observation (LUDO)
  - Artificial Intelligence for Astronomy (AI4Astro)
- Peer Reviewer
  - IEEE Transactions on Information Theory
  - Physica Scripta
  - NeurIPS ML4PS (2023, 2024)
  - Frontiers in Astronomy and Space Sciences
  - Journal of Astronomical Instrumentation
  - Classical and Quantum Gravity
- Prestigious Schools and Interactions
  - Research Week with Google 2024
  - ACM Pingala Interactions in Computing 2024 (Among 45 international researchers either pursuing Ph.D. or graduated after 2019)
  - Radio Astronomy Winter School 2020 (Among 40 students out of 1500+)
- Kaggle
  - Ranked 79 among 2175 teams in "LLM Prompt Recovery" Challenge (Silver Medal)
- PhD conversion rate (100%)  
Received offers from
  - Centre for Machine Intelligence and Data Science, IIT Bombay
  - Yardi School of AI, IIT Delhi
  - Department of Space Science and Astronomy, IIT Kanpur
  - Department of Computer Science and Engineering, IIT Gandhinagar