Aniket Prasad

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Research Interests

Highly interested in the study of physical processes in neutron stars and black holes. Comfortable with machine learning approaches in astronomy.

Education

Indian Institute of Space Science and Technology — Thiruvanathapura,India
MS: Astronomy and Astrophysics | CGPA: 8.48/10.0 — *July 2023–June 2025(Expected)*

National Institute of Technology — Agartala, Tripura
B.Tech. Engineering Physics | CGPA: 8.29/10.0 — *July 2018 – June 2022*

Relevant Research Experience

Spectro-Timing Study of Ultraluminous X-Ray Pulsars
Master's Thesis — *July 2024 – Present*
Dr. Samir Mandal (IIST, India) and Dr. Aru Beri (University of Southampton, UK)

- Working on understanding the timing properties of Ultraluminous X-Ray pulsar.
- Using data from X-Ray missions like NICER, INSIGHT and NuSTAR.

Gravitational Wave Event Localisation using Deep Learning — Remote
Summer Research Intern — *July 2021 – September 2021*
Dr. Linqing Wen, University of Western Australia

- Tasked to deliver a Deep Learning based Model for Gravitational Wave Event Localisation.
- Worked in the supervision of Dr. Linqing Wen, part of OzGrav@UWA Australia research group.
- Adjudged winner of 3-Minute Thesis style presentation based on the project work.

Study of PSR J0034-0721 and Drift Mode Identification — Remote
Summer Research Intern, Indian Academy of Science — *May 2021 – July 2021*
Dr. Manoneeta Chakraborty, Indian Institute of Technology, Indore India

- Studied Single Pulse observations of PSR J0034-0721 using uGMRT and MWA.
- Worked under Dr. Manoneeta Chakraborty in IIT Indore and Dr. Sammy McSweeney in Curtin University to attempt AI-based pipeline.

Other Research Experience

Statistical Validation Study with TESS mission — Remote
Long-term project — *May 2024 – Present*
Dr. David Armstrong, University of Warwick, UK

- Working on performing a wide study on statistical validation of TESS Exoplanets.
- We aim to provide a comprehensive framework and context for doing statistical validation of any candidate.

VaTEST Student Collaboration — Team Website
Project Member — *February 2022 – Present*

- Working on the validation of exoplanets using statistical tools around FGKM stars using TESS.
- Successfully employed TRICERATOPS for validation of 12 exoplanets till now.
- Current work is focussed on rocky planets orbiting low-mass M dwarves.

Origin of Super-Mercury Exoplanet population — Remote
Summer Intern — *July 2023 – August 2023*
Dr. Vardan Adibekyan, Astrofisica e Ciencias Do Espaco, Portugal

- Worked on computing core-mass fractions of exoplanet candidates to isolate super-mercuries.
- Performed statistical tests and clustering of exoplanet population on the hypothetical existence of a distinct population of super mercury type exoplanets.

Publications

Mistry, Priyashkumar, **Prasad, Aniket**, et al.
"VaTEST III: Validation of Eight Potential Super-Earths from TESS Data."
Publications of the Astronomical Society of Australia 41 (2024): e030.
DOI:10.1017/pasa.2024.29

Priyashkumar Mistry, Kamlesh Pathak, **Aniket Prasad**, Georgios Lekkas, Surendra Bhattarai, et al.
" VaTEST. II. Statistical Validation of 11 TESS-detected Exoplanets Orbiting K-type Stars"
The Astronomical Journal, Volume 166, Number 1, 2023
DOI 10.3847/1538-3881/acd548

Priyashkumar Mistry, Kamlesh Pathak, Georgios Lekkas, **Aniket, Prasad**, et al.,
"VaTEST I: validation of sub-Saturn exoplanet TOI-181b in narrow orbit from its host star"
Monthly Notices of the Royal Astronomical Society, Volume 521, Issue 1, May 2023, Pages 1066–1078.
DOI 10.1093/mnras/stad543

Posters

Statistical Validation of 11 TESS-exoplanets orbiting K-Type stars
Sagan Summer Workshop, Online *August 2023*
nexsci.caltech.edu/workshop/2023/posters

Single pulse study of PSR J0034-021 with uGMRT
National Collegiate Research Conference, Harvard University *October 2022*

Training and Workshops

Deep Learning: PyTorch Zero to GANs
JOVIAN, Online *March 2021*
- Training and hands-on for deep learning culminating with graduation project on GANs using Pytorch.

Indian Pulsar Timing Array Student Week
InPTA, NCRA-TIFR *March 2021*
- Training and hands-on for working with uGMRT data reduction for Pulsar Timing using Pulsar packages.

Course on Pulsar Astrophysics
IUCAA,Pune *Jan- Feb 2021*
- Attended an advanced course on the study of Pulsar Emission Mechanisms and Neutron Star Equation of State under Dr. Dipankar Bhattacharya, IUCAA.

Relevant Skills

Languages:	Python || C++ || SQL ||
Tools:	Git || SLURM || LaTeX||
Package:	Tensorflow || PyTorch || Astropy || Scipy ||
Softwares:	HEASOFT || IRAF || PSRCHIVE ||TEMPO2

Volunteer Activities and Co-curriculars

R&D Lead at Space Club
Lead and Managed the Space Computation and Project wing.

Citizen Scientist at NASA
Organised teams to engage in Asteroid Hunting organised by NASA.

Outreach Talk, Spaceonova
Invited talks on Python with Space Applications