Nayan Telrandhe

Nationality: Indian   **Date of birth:** 24/10/1998

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 Work: Hyderabad (India)

ABOUT ME

I am a Physics Master's Graduate, interested in Observational Astronomy, Computational Problems, Science Education and outreach especially for Astronomy. I am currently working as an Educator for Astronomy and Space Sciences. I have worked on Simulating Gravitational waveforms, Signal processing. I am interested in problems involving both Theory and Computation. I am always curious about the concepts that come my way and like exploring with different methods. Some specific Interests - Gravitational Phenomenon(Waves,Lensing,novel GW observation methods), Pulsars and their environments, AI and Education

EDUCATION AND TRAINING

Bachelors of Science (Hons.) Physics
Manipal University Jaipur [01/08/2017 – 01/11/2020]

City: Jaipur
Country: India
Final grade: 9.05/10 or 90.5/100 %

Undergraduate courses in Physics, related courses in Mathematics, basic courses in Chemistry, C++

Masters of Science in Physics
University of Hyderabad [05/11/2020 – 01/09/2022]

City: Hyderabad
Country: India
Final grade: 7.43/10 or 69/100 %

Specialization Courses - General Theory of Relativity Advanced Particle Physics
Computational - Adv Course in Computational methods, Numerical Methods Theory and Lab
Thesis/Masters Project - Report (Entropy as a measure for Signal Processing) , Github Repository

Gravitational Wave Open Data Workshop 5 (2022)
Gravitational Wave Open Science Center [23/05/2022 – 25/05/2022]

Website: https://gwosc.org/odw/odw2022/

Data-driven Astronomy
The University of Sydney (Coursera)

Website: https://www.coursera.org/learn/data-driven-astronomy

Python, Machine Learning, SQL, Astronomy.

WORK EXPERIENCE

Astronomy and Space Educator
Navars Edutech [02/08/2023 – Current]

Country: India

- Teaching students of grade 4th-9th about Astronomy and Space sciences via lessons and experimental kits
- Install, deomonstrate and look after the Space labs
- Organizing astronomy observation events and events for outreach
- Creating content for education and outreach | website - https://www.navarsedutech.com/

Worked **07/08/23 - 07/03/24** at the NAVARS space lab at **Bhartiya Vidya Bhavan's, Bhimavaram**

PROJECTS

Generating Gravitational Waveforms using Post Newtonian terms
[01/05/2022 – 01/10/2022]

  • Reading about Gravitational waves. (Linearizing Einstein's Field equations, Quadrupole & PN Approximation)
  • Simulating waveforms for Compact Binary Coalescence.
  • Comparison of generated waveforms with different approximations. (ex coalescence time delay)
  • Matched filtering with generated waveforms on GW event data from LIGO.
  • Variation of the delay with masses of the binary components was studied. | Group report

Entropy as a measure for Signal Processing
[01/11/2021 – 31/01/2022]

  • Entropy is one of the basic quantities in Physics. The Statistical definition has an analogue in Information Theory named Shannon Entropy (SE) which is more general.
  • Symbolising/discretising signals into a set of characters or words the SE is calculated for that signal/time series. On modification this allows distinguishing two signals based on some parameters of analysis.
  • The method was verified on EEG data and applied on ECG data of Normal and Congested Heart Failure Patients to produce useful results with choice of different parameter values. | Report | Github Repo

CONFERENCES AND SEMINARS

32nd meeting of Indian Association of General Relativity and Gravitation (2022)
[IISER Kolkata, Kolkata, India, 19/12/2022 – 21/12/2022]

Topics - Tensions in Standard Cosmology | Cosmology, Gravitational waves and relativistic astrophysics

Conference on Astro-Tourism & Astro-Entrepreneurship in India
[Indian Institute of Astrophysics, Bengaluru, 11/03/2024 – 13/03/2024]
Link: https://events.iiap.res.in/event/44/overview

EXAMS AND CERTIFICATIONS

Among top 100 participants in the International Teachers' Olympiad

Oct 2023 | Credential

GATE 2023

DIGITAL SKILLS

Latex / Gnuplot / Wordpress / ChatGPT / DALL-E / Google and Microsoft applications / TOPCAT, DS9 / Gemini / Python:numpy, pandas, scipy, matplotlib, gwosc, gwpy, seaborn, multiprocessing, sklearn / Linux / C++ / Git / SQL / Numerical methods (solving Diff equations, Monte Carlo) / Basics of Processing GW Data

LANGUAGE SKILLS

Mother tongue(s): **Marathi** | **Hindi**

Other language(s): **English**

HONOURS AND AWARDS

Gold Medal B.Sc. (Hons.) Physics 2020
Manipal University Jaipur [2020]