

# RAGHAV GIRGAONKAR

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## EDUCATION

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MS (Physics), The University of Texas Rio Grande Valley 08/2022 – 05/2024  
MS thesis: *Mitigation Methods for Instrumental Artifacts in Gravitational Wave Data*

B.Tech (Engg Physics and Electrical Engg) Double Major 08/2017 – 05/2021  
Indian Institute of Technology, Hyderabad  
B.Tech thesis: *Pulsar Timing Arrays and the Indian Pulsar Timing Array Project*

## WORK EXPERIENCE

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**Graduate Research Assistant at the University of Texas Rio Grande Valley** 08/2022 – 05/2024  
Adviser: Soumya D. Mohanty

**Amity-Berkeley SETI Junior Research Fellowship** 11/2021 – 05/2022  
Adviser: Vishal Gajjar (UC Berkeley)

**Undergraduate Student Researcher at the Indian Pulsar Timing Array (InPTA) Consortium**  
07/2019 – 05/2022  
Advisers: Bhal Chandra Joshi (NCRA) and Shantanu Desai (IIT Hyderabad)

Undergraduate Summer Internships:

**Mini-Project Intern at the Inter University Center for Astronomy and Astrophysics (IUCAA)** 2019  
Advisers: Joydeep Bagchi and Jameer Manur (Radio Physics Lab, IUCAA)

## AWARDS AND SCHOLARSHIPS

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Outstanding Thesis in Physics Award	2024
TACCSTER Travel and Participation Award	2023
MITACS Globalink Research Internship <sup>1</sup>	2020

## TECHNICAL SKILLS

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<b>Computer Languages</b>	Python, Bash scripting, MATLAB, $\text{\LaTeX}$ , C
<b>Operating Systems</b>	Linux, Windows, macOS
<b>Other Software</b>	Git, Microsoft Office

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<sup>1</sup>Cancelled due to the COVID 19 Pandemic

## CONFERENCE / RESEARCH SUPPORT GRANTS

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Society of Physics Students Conference Travel Support	2023
NSF SWEETER #1925764 Travel Support	2023
NSF Educational Travel Support: <i>A Stellar Student Experience</i>	2023
Penn State SETI Symposium 2023 Travel Support	2023
NSF PHY-2207935 Graduate Research Award	2022-2024
Breakthrough Listen Conference Travel Support	2022

## REFEREED JOURNAL PUBLICATIONS

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Arranged latest to oldest.

1. **Girgaonkar, R** and Mohanty, S, *Glitch Veto based on Unphysical Gravitational Wave Binary Inspiral Templates* (Submitted [arxiv:2401.15237](https://arxiv.org/abs/2401.15237))
2. Srivastava, A et al. (31 authors including **Girgaonkar, R.**), *Noise analysis of the Indian Pulsar Timing Array data release I*, [2023 Phys. Rev. D 108, 023008](#).
3. Tarafdar, P et al. (38 authors including **Girgaonkar, R.**), *The Indian Pulsar Timing Array: First data release*, [PASA 2022 39](#).
4. Joshi B. C., et al. (37 authors including **Girgaonkar, R.**) *Nanohertz Gravitational Wave Astronomy during the SKA Era: An InPTA perspective*., [2022 JoAA](#)
5. K Nobleson, et al. (32 authors including **Girgaonkar, R.**) *Low-frequency wideband timing of InPTA pulsars observed with the uGMRT*, [MNRAS 2022 512](#)
6. Singha, J, et al. (33 authors including **Girgaonkar, R.**), *Evidence for profile changes in PSR J1713+0747 using the uGMRT*, [MNRAS 2021 507](#).
7. M.A. Krishnakumar, et al. (22 authors including **Girgaonkar, R.**), *High Precision Measurements of Interstellar Dispersion Measure with the upgraded GMRT*, [A&A 2021 651 A5](#)
8. Susobhanan, A et al., (23 authors including **Girgaonkar, R.**), *pinta: The uGMRT Data Processing Pipeline for the Indian Pulsar Timing Array*, [PASA 2021 12](#)

## ACADEMIC PRESENTATIONS

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### Conference Talks

APS/AAPT Texas Section Meeting 2023	2023
<i>NSPECKT: A Non-Parametric Change Point Detector for Gravitational Wave Data</i>	
Platform Talk TACCSTER 2023	2023
<i>Efficient Glitch Detection in Gravitational Wave Data using Particle Swarm Optimization</i>	
Invited Talk AMD HPC Users Forum	2023
<i>Efficient Glitch Detection in Gravitational Wave Data using Particle Swarm Optimization</i>	
The Penn State SETI Symposium	2023
<i>SETI India: A Search for Technosignatures with the uGMRT</i>	
The College of Sciences Annual Research Conference, UTRGV	2023

*Effect of Alternative Model Parameters on Gravitational-Wave Searches*

Undergraduate Physics Symposium, Presidency University, Kolkata 2021  
*High precision measurements of interstellar dispersion measure with the upgraded GMRT*

Posters

TACCSTER 2023 2023  
*Efficient Non-Stationarity Detection in Gravitational Wave Data*

Annual Meet of the Astronomical Society of India 2022  
*SETI India: Using uGMRT to search for advanced extraterrestrial life*

**COMPETITIVELY AWARDED ALLOCATIONS**

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Observing Proposals (as Co-PI)

The Giant Metrewave Radio Telescope:

1. 38\_014 Indian Pulsar Timing Array (InPTA) experiment using the upgraded wideband GMRT and the ORT: 2020 Update **(96 hrs.)**
2. 39\_013 Indian Pulsar Timing Array (InPTA) experiment using the upgraded wideband GMRT: 2020 Second Update **(112 hrs.)**
3. 40\_012 Indian Pulsar Timing Array (InPTA) experiment using the upgraded wideband GMRT: 2021 Update **(208 hrs.)**
4. 41\_023 Indian Pulsar Timing Array (InPTA) experiment using the upgraded wideband GMRT: Update **(208 hrs.)**
5. 42\_006 Indian Pulsar Timing Array (InPTA) experiment using the upgraded wideband GMRT: Update **(208 hrs.)**
6. ddtC199 Continued high cadence follow up of a transient event in PSR J1713+0747 **(15 hrs.)**
7. 42\_025 Target of opportunity proposal for monitoring pulse-shape changes in the International Pulsar Timing Array pulsar sample **(20 hrs.)**
8. ddtC226 A pilot exploratory proposal for a search for advanced extraterrestrial life with the uGMRT **(3 hrs.)**
9. 43\_015 Target of opportunity proposal for monitoring pulse-shape changes in the International Pulsar Timing Array pulsar sample **(10 hrs.)**
10. 43\_020 Indian Pulsar Timing Array (InPTA) experiment using the upgraded wideband GMRT: Update July 2022 **(208 hrs.)**
11. 44\_031 Target of opportunity proposal for monitoring pulse-shape changes in the International Pulsar Timing Array pulsar sample **(20 hrs.)**

Supercomputing Proposals (as Project Member)

Texas Advanced Computing Center (TACC): LoneStar6 allocations PHY21049:  
Gravitational Wave Data Analysis Algorithm Development **(9000 hrs.)**

## MENTORING EXPERIENCE

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Mentored UTRGV undergraduate student Oscar Arteaga for his undergraduate thesis project, Fall 2023

Undergraduate Student Mentor to undergraduate freshmen as a part of *Sunshine*, the counselling cell of the Indian Institute of Technology, Hyderabad for the academic year 2018-2019.

## TEACHING EXPERIENCE

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Teaching Assistant (Indian Institute of Technology, Hyderabad)  
Thermodynamics

Spring 2019

## MEMBER AFFILIATIONS

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### Active

Student member, Society of Physics Students

2023 – Present

Student member, The Astronomical Society of India

2022 – Present

### Past

Member, Indian Pulsar Timing Array Consortium

2019 – 2023