

Pranav Nagarajan

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Education

California Institute of Technology <i>Ph.D. in Astrophysics</i> Advisor: Kareem El-Badry	Pasadena, CA 2022-Present GPA: 4.2 / 4.0
University of California, Berkeley <i>B.A. in Astrophysics, Physics, and Data Science</i> Advisor: Dan Weisz	Berkeley, CA 2018-2022 GPA: 4.0 / 4.0

Research Experience

Graduate Student Researcher <i>Advisor: Prof. Kareem El-Badry</i> <ul style="list-style-type: none">Discovering and Characterizing Stellar-Mass Black Holes and Neutron Stars in Galactic Binaries	California Institute of Technology 2022 - Present
Undergraduate Student Researcher <i>Advisor: Prof. Daniel Weisz</i> <ul style="list-style-type: none">Mapping the Local Group with RR Lyrae	University of California, Berkeley 2020 - 2022
BSRC Summer Internship <i>Mentor: Dr. Vishal Gajjar</i> <ul style="list-style-type: none">Breakthrough Listen Periodic Spectral Signals Search	Berkeley SETI Research Center Summer 2021
Undergraduate Research Apprenticeship Program <i>Mentor: Dr. Andreas Zoglauer</i> <ul style="list-style-type: none">Using 3D Convolutional Neural Networks and Graph Neural Networks for Compton Track Identification in Gamma-Ray Space Telescopes	Space Sciences Laboratory 2019 - 2021

Teaching Experience

Teaching Assistant <i>High-Energy Astrophysics, Galaxies and Cosmology</i>	California Institute of Technology 2024
Undergraduate Student Instructor <i>Principles and Techniques of Data Science</i>	University of California, Berkeley 2020

Honors & Awards

NSF Graduate Research Fellowship Program: Honorable Mention	2024
Highest Distinction in General Scholarship	2022
URAP Summer Award	2020
National Merit Scholarship	2018

Awarded Telescope Time

Palomar Hale 200-inch 3 nights (PI) + 3 nights (Co-I)
Keck 10m 5.5 nights (Co-I)

Observing Experience

Keck II Telescope, Near-Infrared Camera 2 – 1 night 2024
Keck II Telescope, Near-Infrared Echelle Spectrometer – 3 nights 2024
Very Large Telescope, Focal Reducer and Low Dispersion Spectrograph 2 – 1 night 2024
Magellan I Telescope, Inamori Magellan Areal Camera and Spectrograph – 1 night 2024
Palomar Hale Telescope, Wide-Field Infrared Camera – 2 nights 2024
Keck I Telescope, Low Resolution Imaging Spectrometer – 1 night 2024
Palomar Hale Telescope, Caltech High-speed Multi-color Camera – 1 night 2023
Palomar Hale Telescope, Double Spectrograph – 3.5 nights 2023
Keck II Telescope, Echelle Spectrograph and Imager – 1 night 2022

Journal Referee

MNRAS, ApJ, AJ, OJAp, ApJL 5 papers total, 2023 – Present

Talks

Talk, Symbiotic stars conference, Prague, Czech Republic Jun. 2024
Tea Talk, Observatories of the Carnegie Institution for Science, Pasadena, CA May 2024
Talk, Stellar-Mass Black Holes Group Meeting, Pasadena, CA Jan. 2024
Talk, Zwicky Transient Facility Team Meeting, Pasadena, CA Oct. 2023
Talk, Zwicky Transient Facility Stellar Group Meeting, Pasadena, CA Mar. 2023

Refereed Publications

7. **Nagarajan, P.** & El-Badry, K. (2024). Validation of Gaia DR3 orbital and acceleration solutions with hierarchical triples. *Publications of the Astronomical Society of the Pacific*, 136(9), 094203.
6. **Nagarajan, P.**, El-Badry, K., Lam, Y. C., & Reggiani, H. (2024). The Symbiotic X-ray Binary IGR J16194-2810: A Window on the Future Evolution of Wide Neutron Star Binaries From Gaia. *Publications of the Astronomical Society of the Pacific*, 136(7), 074202.
5. **Nagarajan, P.**, El-Badry, K., Triaud, A. H., Baycroft, T. A., Latham, D., Bieryla, A., Buchhave, L. A., Rix, H.-W., Quataert, E., Howard, A., Isaacson, H., & Hobson, M. J. (2024). ESPRESSO Observations of Gaia BH1: High-precision Orbital Constraints and no Evidence for an Inner Binary. *Publications of the Astronomical Society of the Pacific*, 136(1), 014202.
4. **Nagarajan, P.**, El-Badry, K., Rodriguez, A. C., van Roestel, J., & Roulston, B. (2023). Spectroscopic follow-up of black hole and neutron star candidates in ellipsoidal variables from *Gaia* DR3. *Monthly Notices of the Royal Astronomical Society*, 524(3), 4367–4383.
3. El-Badry, K., Shen, K. J., Chandra, V., Bauer, E. B., Fuller, J., Strader, J., Chomiuk, L., Naidu, R. P., Caiazzo, I., Rodriguez, A. C., **Nagarajan, P.**, Yamaguchi, N., Vanderbosch, Z. P., Roulston, B. R., Gänsicke, B., Han, J. J., Burdge, K. B., Filippenko, A. V., Brink, T. G., & Zheng, W. (2023). The fastest stars in the galaxy. *The Open Journal of Astrophysics*, 6.

2. Suresh, A., Gajjar, V., **Nagarajan, P.**, Sheikh, S. Z., Siemion, A. P., Lebofsky, M., MacMahon, D. H., Price, D. C., & Croft, S. (2023). A 4–8 GHz Galactic Center Search for Periodic Technosignatures. *The Astronomical Journal*, *165*(6), 255.
1. **Nagarajan, P.**, Weisz, D., & El-Badry, K. (2022). RR Lyrae-based distances for 39 nearby dwarf galaxies calibrated to *Gaia* EDR3. *The Astrophysical Journal*, *932*(1), 19.