Andy Nilipour
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EDUCATION

Yale University, New Haven, CT — Expected Graduation 2025

- Bachelor of Science, Astrophysics and Mathematics; Cumulative GPA 4.00
- *Relevant Coursework*: Radio Astronomy, Research Methods in Astrophysics, Advanced Probability, The Evolving Universe, Stars and Their Evolution, Interstellar Matter and Star Formation, Astrophysical Flows, Vector Calculus and Linear Algebra, Classical Mechanics, Electromagnetic Fields and Optics, Quantum Mechanics, Quantum Information Processing and Communication
- *Honors*: Phi Beta Kappa

RESEARCH EXPERIENCE

National Radio Astronomy Observatory — May 2023 – August 2023

NRAO NSF REU Intern, Advisors: Drs. Juergen Ott, Brian Svoboda, and David Meier

- Utilizing ALMA data to measure the physical and kinematic properties of molecular gas potentially feeding the Central Molecular Zone

Berkeley SETI Research Center — June 2022 – Present

Breakthrough Listen NSF REU Intern, Advisors: Drs. James Davenport (UW) and Steve Croft (UCB)

- Constrained technosignature candidate searches in scheduled observations and archival data using geometric signaling and receiving frameworks, utilizing high-precision astrometric and photometric data from Gaia Data Release 3
- Working on a classification algorithm to process alerts from LSST, with current testing based on the ELAsTiCC light curve simulations

Breakthrough Listen Intern, Advisors: Dr. Clement Vidal

- Studying potential close encounters between spider pulsars and nearby stars as a possible technosignature in the form of goal-directed activity

Yale Department of Physics — November 2020 – Present

Research Assistant, Advisor: Dr. Nikhil Padmanabhan

- Analyzed quasar data from the SDSS eBOSS catalogue using the quadratic maximum likelihood estimator to provide a measurement of the 1D Ly-α forest power spectrum that aligns well with previous power spectrum results
- Using a neural network to learn the evolution of the linear point of the BAO feature in the two-point correlation function

University of Arizona Department of Astronomy — May 2019 – March 2020

Research Assistant, Advisor: Dr. Daniel Apai

- Developed a program to calculate which TESS Earthlike exoplanet candidates were observable during their projected transits from nine different telescopes in order to perform follow-up analyses

University of California, San Diego Physics Department — May 2018 – March 2020

Research Assistant, Advisor: Dr. Brian Keating

- Helped design and construct affordable and easily reproducible linear and circular polarimeters

PUBLICATIONS

- **Nilipour, A.**, Davenport, J., Croft, S., & Siemion, A. "Signal Synchronization Strategies and Time Domain SETI with Gaia DR3." In press.
- Davenport, J., Sheikh, S., Farah, W., **Nilipour, A.**, Cabrales, B., Croft, S., Pollak, A., Siemion, A. "Real-time Technosignature Strategies with SN 2023ixf." *Research Notes of the AAS* 7, 120 (2023)

PRESENTATIONS

- **Nilipour, A.**, Farnik, N., & Padmanabhan, N. "Linear Point Standard Ruler Estimation with Neural Networks." iPoster at: 242nd Meeting of the American Astronomical Society, June 2023, Albuquerque, NM
- **Nilipour, A.**, Davenport, J., & Croft, S. "Signal Synchronization Strategies and Time Domain SETI with Gaia DR3." Oral presentation at: 241st Meeting of the American Astronomical Society, January 2023, Seattle, WA
- **Nilipour, A.**, Karacayli, N. G., & Padmanabhan, N. "One-dimensional Lyman-α forest power spectrum estimate from eBOSS." iPoster at: 240th Meeting of the American Astronomical Society, June 2022, Pasadena, CA
- Morrissey, G., Bakaleynik, E., …, **Nilipour, A.**, et al. "Bouchet Low-Earth Alpha/Beta Space Telescope (BLAST)." Poster at: NASA CT Space Grant Consortium Fall Grants Expo, November 2022, Hartford, CT

ACTIVITIES

Yale Undergraduate Aerospace Association (YUAA), Team Leader — September 2021 – Present

- Leader of the cosmic ray detector team of the YUAA CubeSat project, which has a projected launch date in spring 2023 and will detect variations in the Van Allen radiation belt, with the primary objective of mapping the boundaries of the South Atlantic Anomaly

WORK EXPERIENCE

Teaching Fellow for Elementary Japanese II (JAPN 120) January 2023 – Present

- Hold weekly one-on-one sessions with students in the second semester of first-year Japanese to work on grammar, vocabulary, pronunciation, and conversational skills

Grader for Discrete Mathematics (MATH 244) September 2022 – Present

SKILLS

- **Computational**: Python, PyTorch, Qiskit, CASA, GNU Radio, MATLAB, Git, C#, LaTeX, CARTA

PRESS

- **The Economist**: *Ideas for finding ET are getting more inventive* 18 January 2023

REFERENCES

Nikhil Padmanabhan, Associate Professor of Physics and Astronomy, Yale University

- nikhil.padmanabhan@yale.edu

Héctor Arce, Professor of Astronomy, Yale University

- hector.arce@yale.edu

James Davenport, Research Assistant Professor of Astronomy, University of Washington

- jrad@uw.edu