Rohan Narasimhan

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EDUCATION

University of Illinois Urbana Champaign — Aug. 2021 – May 2025 (Expected)
Bachelor of Science in Engineering Physics (Computational Track) — *GPA – 3.70*
Bachelor of Science in Statistics

RESEARCH/WORK EXPERIENCE

Research Intern — May 2023 – Present
Shapiro Research Group (Illinois Relativity Group) — *Champaign, IL*
- Leading a team of 5 undergraduates to create movies and 3D visualizations in the field of General Relativistic Magnetohydrodynamics under the mentorship of Professor Stuart L Shapiro
- Rendering images of binary neutron stars, black holes and disks using VisIt-CLI based code across 3 supercomputers - TACC Frontera, Anvil and Expanse
- Developed python and bash scripts to set up a new way to generate gravitational waves and 3D data in the same render

High Performance Computing Intern — January 2024 – Present
Mentored by Professor Antonios Tsokaros — *Champaign, IL*
- Parallelizing Fortran code for COCAL (Compact Object Calculator, a code that computes initial data for a variety of astrophysical systems) using MPI
- Visualizing a purely hydrodynamic rotating neutron star disk

Undergraduate Research Assistant — August 2022 – Present
Fusion Studies Laboratory — *Champaign, IL*
- Used techniques such as X-Ray Diffraction, Scanning Electron Microscopy and Focused Ion Beam to analyze the surface morphology of an electrode bombarded with a deuterium ion beam and conducted a materials analysis
- Used python to develop computational models of the magnetic fields of spinning charged particles in order to conduct an analysis of a boron dusty plasma
- Extensive experience working with vacuum technology and flanges - built a working vacuum chamber that went down to pressures of 10^{-3} torr

Undergraduate SysAdmin — August 2022 – May 2023
Theoretical and Computational BioPhysics Group, (Beckman) — *Champaign, IL*
- Physically installed multiple servers and helped install operating systems on new machines
- Helped with basic IT support and troubleshooting around the lab

GRANTS/AWARDS

2024 Philip J. and Betty M. Anthony Undergraduate Summer Research Award - **$3000**

2024 Mats A. Selen Undergraduate Outreach Achievement Award - **$1000**

OUTREACH ACTIVITIES

Physics Van Coordinator — January 2023 – Present
- Head Coordinator of the Illinois Grainger Physics Department's outreach program - Physics Van
- Conduct physics shows and booths across Illinois to get elementary/middle school students interested in physics
- Spearheading the creation of new demos to explain the more unintuitive parts of modern physics, and modifying the shows to appeal to high school students

Vice President of PURE — August 2022 – Present
- PURE is a student run undergraduate research program that connects freshmen and sophomores with grad students to work on research projects
- Revived the program after the COVID-19 pandemic, increased the number of graduate student mentors by nearly **4x** through advertising

Published Visualizations

J.Bamber, A.Tsokaros, M.Ruiz, S.L.Shapiro,"Jet-like structures in low-mass binary neutron star merger remnants", 2024 (submitted for review)

Posters/Presentations

R. Narasimhan & Y. Liang. 3D Visualization of Supermassive and Hypermassive Binary Neutron Star Mergers (pdf)
(April 2024, UIUC Undergraduate Research Symposium)

R. Narasimhan. A Materials Analysis of a Palladium Electrode treated with DC discharge.
(April 2023, Independent Study Presentation)

Technical Skills

Languages: Java, Python, C++, R, Bash Shell Scripting
Libraries: pandas, NumPy, Matplotlib, Scipy
Software: LaTeX, Git, VisIt