Eric Yu
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Summary

High-achieving student pursuing degrees in **physics** and **mathematics** with a minor in **computer science**. Two-plus years of experience as an undergraduate research assistant doing work in theoretical and computational astrophysics. Experienced in **developing and maintaining Python/Bash code** that efficiently process and analyze large datasets.

Education

University of Illinois at Urbana-Champaign *Aug. 2020 - May 2024*

B.S in Physics and B.S. in Mathematics, minor in Computer Science

- Unweighted GPA: 3.98/4.00

Horace Greeley High School *June 2020*

High School Diploma

- Magna cum laude

Experience

National Center for Supercomputing Applications *June 2023 - Present*

Undergraduate Research Assistant

- Development and parallelization of COCAL code that solves the initial value problem in numerical relativity for a rotating neutron-star/black-hole surrounded by a self-gravitating gaseous disk.

Center for Theoretical Astrophysics, University of Illinois at Urbana-Champaign *June 2021 - Present*

Undergraduate Research Assistant

- Led a team of 5 undergraduates to create 3D visualizations on supercomputers of neutron stars, black hole disks, and binary black holes using an internally developed, VisIt CLI-based code.
- Developed a set of Python/Bash/C++ scripts that extract and visualize gravitational waveforms from numerical relativity simulation data.
- Co-developed a set of Python scripts that can measure the proper circumference of black holes, neutron stars, and accretion disks in curved spacetime.
- Award-winning visualizations featured in 3 *Phys. Rev. D* articles and CASC 2023.

Awards and Honors

Office of Undergraduate Research Support Grant ($1750) *March 2023*
Ralph O. Simmons Undergraduate Research Scholarship ($3000) *May 2022*
Lorella M. Jones Summer Research Award ($3000) *May 2021*

Coursework

Physics Classical Mechanics | Electricity & Magnetism | Quantum Mechanics | Statistical Mechanics (FA'23) | General Relativity (FA'23)

Mathematics Statistics & Probability | Multivariable Calculus | Differential Equations | Linear Algebra | Differential Geometry | Abstract Algebra (FA'23) | Real Analysis (FA'23)

Computer Science Data Structures | Machine Learning | Numerical Analysis

Skills

Programming ***Experienced:*** Python | Bash ***Familiar:*** C++ | Java

Libraries NumPy | Matplotlib | SciPy | PyTorch