CHAU TRUONG

Portfolio Website | ct8810@princeton.edu | (808)-219-6068

EDUCATION

Princeton University

A.B. in Physics, Minor in Computer Science *September 2021 - May 2025*

- **Relevant Coursework:** Quantum Mechanics, Electromagnetism, Statistical Mechanics, Experimental Physics, Data Structures & Algorithms, Programming Systems, Computer Graphics, Data Science

RESEARCH EXPERIENCE

Senior Thesis Project *September 2024 - current*

- Improving binary black hole simulations within the AthenaK framework, a new implementation of Athena++

Summer Research Intern *Summer 2024*

- Developed code from scratch in Julia to calculate EMRI gravitational waveforms using the numerical kludge method
- Produced animations and sonified waveform data to enhance visual and auditory interpretation

"Predicting Ejections of Compact Multi-Planet Systems"

Junior Year Spring Independent Work *February 2024 - April 2024*

- Conducted N-body simulations of compact planetary systems using the REBOUND software package
- Analyzed planetary dynamics and trends to identify factors contributing to ejections over long-term evolution

"Modeling Black Hole Frequency Spectra with Non-Standard Disk Models"

Summer Research Intern/Junior Year Fall Independent Work *June 2023 - January 2024*

- Conducted summer research to model broadened iron emission lines of black hole accretion disks
- Utilized Adaptive Analytical Ray Tracing (AART) code and developed code to calculate emission lines
- Enhanced runtime efficiency by converting image grids to polar coordinates within AART framework
- Extended research into independent study, analyzing spectral variations in disk models with sub-Keplerian flow
- Co-authored *On the Morphology of Relativistically Broadened Line Emission: Generic Equatorial Orbiters — In Prep*

RELEVANT PROJECTS

Princeton Rocketry Club

High-Altitude Ballooning *Fall 2022*

- Constructed a payload consisting of a GPS, two video cameras, and an alarm system to locate the balloon
- Performed simulations and predicted trajectories to determine balloon launch location and identify landing site
- Successfully launched a 600-g high altitude weather balloon along with constructed payload in December 2022

High-Power Rocketry, Electrical and Software Sub-Team Lead *October 2021- April 2022*

- Effectively collaborated with 4 other leads to develop a payload of multiple sensors and video camera
- Designed and tested a functional circuit board to allow for the collection and recording of rocket launch data
- Assembled Zephyr HPR flying rocket in preparation for a spring launch and attainment of Level 1 certification

TEACHING EXPERIENCE

PHY104 General Physics II

Undergraduate Teaching Assistant *Spring 2024*

- Conducted office hour sessions to assist students in understanding course material and clarifying concepts
- Responded to discussion questions on the course's online platform, fostering an engaging learning environment

PHY102 Introductory Physics II

Lab Undergraduate Teaching Assistant *Spring 2023*

- Assisted graduate Assistant Instructors (AIs) in guiding student groups through laboratory assignments
- Demonstrated proficiency in lab procedures by completing assigned lab during weekly training sessions
- Offered guidance, addressed queries, and supported students by actively engaging within lab environment

SKILLS

Technology: Java, Python, C, Julia, Javascript, Mathematica, LaTeX

Languages: English (native), Vietnamese (proficient, limited literacy)