

CHAU TRUONG

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

EDUCATION

Princeton University

May 2025

A.B. in Physics, Minor in Computer Science

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

RESEARCH EXPERIENCE

Senior Thesis

September 2024 - current

Advisors: James Stone, Hengrui Zhu

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

Summer Research Intern

June 2024 - July 2024

Advisor: Alejandro Cárdenas-Avendaños

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

Junior Spring Independent Work

February 2024 - April 2024

Advisor: Adam Burrows

[Predicting Ejections of Compact Multi-Planet Systems](#)

- Conducted N-body simulations of compact planetary systems using the REBOUND software package
- Examined long-term stability of planetary systems in relation to initial orbital separations of planets
- Analyzed planetary dynamics and trends to identify factors contributing to ejections over long-term evolution

Summer Research Intern/Junior Fall Independent Work

June 2023 - January 2024

Advisor: Delilah Gates

[Modeling Black Hole Frequency Spectra with Non-Standard Disk Models](#)

- 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

TEACHING EXPERIENCE

Undergraduate Teaching Assistant, PHY104 General Physics II

January 2024 - May 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

TEACHING EXPERIENCE CONTINUED

Lab Undergraduate Teaching Assistant, PHY102 Introductory Physics II

January 2024 - May 2024

- 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

LEADERSHIP EXPERIENCE

Princeton Rocketry Club

High-Altitude Ballooning

September 2022 - December 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

COMPUTATIONAL SKILLS

Programming Languages: Java, Python, C, Julia, Javascript

Technical Computing: Mathematica

LANGUAGES

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

PUBLICATIONS

Submitted Papers

1. *On the Morphology of Relativistically Broadened Line Emission from Axisymmetric Equatorial Accretion Disks.*

D. E. A. Gates, **C. Truong**, A. Sahu, & A. Cárdenas-Avendaño

[2411.14338 \[astro-ph.HE\]](#)