Nico O'Neill

Syracuse, NY | neoneill@syr.edu | 551 998 1828 | ninoc0.github.io/home/ | github.com/ninoc0

Education

Syracuse University, BS in Physics, minor in Computer Science — Sept 2021 – May 2025

- GPA: 4.0/4.0 major, 3.3/4.0 overall

Experience

Research Assistant — October 2023 – Present

Center for Gravitational Wave Astrophysics, Syracuse University

- Performed a variety of circuit design and analysis tasks, using Python
- Developed improvements to PyZero, a Python library capable of circuit modeling
- Designed an optical table layout for our lab, as well as maintaining an up-to-date finesse model of our as-built table
- Gained lab experience in a variety of tasks such as polarization, profiling, alignment, and cavity locking

Research Assistant — September 2021 – May 2022

Economics Department, Syracuse University

- Designed and developed software capable of parsing and digitizing tax data utilizing the format required for our research

Presentations

Ligo-Virgo-Kagra Meeting — September 2024

Poster Presentation: Progress Towards Ultra-High Power Photoneutralization Cavity

LIGO-G2401661

Undergraduate Research Colloquium — September 2024

Talk: Stabilizing High Power Laser Cavities

LIGO-G2401553

Syracuse Undergraduate Research Presentation — April 2024

Poster Presentation: Laser Frequency Feedback Controls for Ultra-High Power Cavity Locking

Link to Poster

Projects

Personal Website — ninoc0.github.io/home

- Developed an personal website to show off my portfolio as well as layout my general research interests
- Tools Used: Java, HTML

Planetary Simulation — ninoc0/Computational-Physics-Simulations

- Created a simulation of our solar system, as well as added in features to simulate "what-if" situations with astronomical objects
- Tools Used: Python

Gas Particle Simulation — ninoc0/Computational-Physics-Simulations

- Developed a simulation of gas particles in a 2d container, tracking their interactions and estimating the temperature changes over time
- Tools Used: Python

Teaching

General Physics 1 Lab Fall 2023-Spring 2024

- Aided in instructing lab sessions, helped students with pre-lab assignment, answered in lab questions, and troubleshooted lab equipment

Science and Computers Fall 2024-Present

- Available for project help, teaching students Python from basic to what they require for projects
- Creating notes for the instructor to improve the course for future semesters, specifically when it comes to feasibility for students who want to complete the course in Python

General Physics 1 Spring 2024

- Instructed students 1-on-1 who were struggling in their first physics class, to develop basic math skills and gain intuition for how to address physics problems

Outreach and Volunteering

La Casita Fall 2023

- Volunteered to run an after school program for hispanic students in the Syracuse area
- Brought STEM related activities, such as rockets, basic game coding activites, and pasta building games
- Shared my experience as someone who is pursing a career in Physics, to inspire students to pursue science

Fair Lawn Public Library 2018-2021

- Began as a volunteer and later became an employee of Fair Lawn Public Library during their summer programs
- Helped oragnize and run various STEM activities for elementary aged students interested in learning outside of school

Technologies

Languages: Python, Java, HTML, MATLAB, LaTeX

Technologies: Git, Ubuntu, Arduino, Raspberry Pi
Hardware: SR785, Moku:Pro, SR560