

Nathan Whittington

Knoxville, Tn — nwhitti1@vols.utk.edu — (865)621-2500
github.com/NathanW46 — linkedin.com/in/nathan-whittington

EDUCATION

- **University of Tennessee, Knoxville** Knoxville, TN
B.S. Physics and Mathematics – GPA: 4.0 Aug. 2024 - Present
- **Roane State Community College** Harriman, TN
A.S. General Science – GPA: 4.0, President’s List Aug. 2022 - May 2024

EXPERIENCE

- **Undergraduate Research – Mirror Matter Search** Knoxville, TN
University of Tennessee Aug. 2024 - Present
 - Experimental analysis of a hidden-sector dark matter search investigating neutron–mirror neutron oscillations at Oak Ridge National Lab.
 - Investigating potential mass degeneracy and a neutron–mirror neutron transition magnetic moment.
- **SULI Summer Intern** Upton, NY
Brookhaven National Laboratory Jun. 2025 - Aug. 2025
 - Implemented realistic material reflectivity modeling and material maps in the *Synchrotron Radiation Workshop (SRW)* simulation package.
 - Integrated *XrayDB* for optical constants and reflectivity calculations; contributed upstream support for multilayer and coated mirrors.
- **Next-Gen Pathways to Computing Intern** Oak Ridge, TN
Oak Ridge National Laboratory Jun. 2024 - July 2024
 - Developed a Particle Swarm Optimization algorithm to determine crystal unit cell orientation from Laue diffraction patterns.

AWARDS

- **Outstanding First-Year Student, University of Tennessee** May 2025
- **Calculus-Based Physics Award, Roane State Community College** May 2024
- **Best Student Poster Presentation, ORNL Joint Users Meeting** Aug. 2025
- **OLCF Hands-On HPC Crash Course Certificate** July 2024
 - MPI, OpenMP, GPU programming, and ML (Oak Ridge Leadership Computing Facility)

PRESENTATIONS & PUBLICATIONS

- **On the Neutron Transition Magnetic Moment**
- **Analysis of Dark Mirror Neutron Search Experiment**
 - AsUReS UTK (oral), EuReCa UTK (poster), ORNL Joint Users Meeting (poster)
- **XrayDB**
 - Upstream contributions - github.com/xraydb
- **Automating Crystallography Data Collection** - Poster

ACTIVITIES

- **Society of Physics Students** - Secretary Aug. 2024 - Present
- **UTK Trombone Studio** Aug. 2024 - Present
- **UTK Academic Quiz Bowl** Aug. 2024 - Present
- **RoaneNET** - Computer Refurbishment Volunteer Jun. 2022 – Aug. 2022

SKILLS

- **Computing:** Python, C++, ROOT, Java, L^AT_EX, Linux, Git, High Performance Computing
- **Other:** KiCad / PCB Design, SOLIDWORKS, Fusion 360, Cura, SMD Soldering, Computer Hardware