Nathan Whittington

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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.

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

- **Analysis of Dark Mirror Neutron Search Experiment**
  - AsUReS UTK (oral), EuReCa UTK (poster), ORNL Joint Users Meeting (poster)
- **XrayDB -** github.com/xraydb
  - Upstream contibutions for multilayer and coated mirror reflectivity support
- **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, LaTeX, Linux, Git, Cuda / High Performance Computing
- **Other:** KiCad / PCB Design, SOLIDWORKS, Fusion 360, Cura, SMD Soldering, Computer Hardware