RYAN Y. MANLEY

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EDUCATION

Purdue University, West Lafayette, IN — Aug 2024 – Present
Bachelor of Science in Electrical Engineering (BSEE), GPA: 4.00/4.00 — (Exp. Grad. May 2028)
AWARDS: *Charles W. Brown ECE Scholarship in ECE, Dean's List, and Semester Honors*
Phillips Exeter Academy, Exeter, NH, *High Honors* — Aug 2020 – Jun 2024

TECHNICAL SKILLS

Programming	Python (TensorFlow, Qiskit, Flask), Java, C, C++, MATLAB, R, JavaScript (Next, React), html, css
Software	Quantum Espresso (DFT), SRIM, Onshape, Fusion 360, GitHub, Google Workspace, Microsoft Office
Lab/Hardware	XRD, AFM, SQUID, PPMS, CVT, ODMR, 2D Material Exfoliation & Stacking, Arduino, Optics

RESEARCH

Quantum Heterostructures Group at Oak Ridge National Lab, Oak Ridge, TN
RSI Research Intern — May 2025 – Aug 2025

- Developed a novel quantum sensing fabrication protocol for boron vacancy defects in hexagonal boron nitride (hBN).
- Designed and built a room temperature quantum sensing microscope system with a mounted laser optics train.
- Automated nanoscale Johnson Noise relaxometry & ODMR measurements and analysis in Python, quantifying quantum decoherence from gold waveguides — addressing a key challenge in quantum device scaling.
- Made gradient dosage sample with helium ion microscope (HIM) to study spin-spin interaction with a SPAD array.
- Abstract accepted to give a 20-minute symposium talk for The Minerals, Metals & Materials Society (TMS) at the international March 2026 meeting and paper in progress.

Quantum Matter and Devices Group at Purdue University, West Lafayette, IN
Student Researcher — Jan 2025 – Jun 2025

- Researched exploiting super lubricity to engineer twisted TMD semiconductor heterostructures that can form tunable moiré superlattices, enabling morphic quantum electronics via piezoelectric and magnetic in-situ twist angle control.

Emergent Crystalline Matter Group at University of Tennessee, Knoxville, TN
Full Time Paid Research Intern — Jul 2023 – Sep 2023 & Jul 2024 – Aug 2024

- Synthesized novel materials, including high entropy alloys and superconductors, using flux and chemical vapor transport (CVT) growth methods. Characterized materials with X-ray diffraction (XRD), SQUID, and PPMS systems.
- Developed the CrysTool Hub website, an open-source calculation & modelling tool to accelerate materials research.

LEADERSHIP AND VOLUNTEERING EXPERIENCE

Quantum Student Organization (QSO), Purdue University
Vice President — Feb 2025 – Present

- Direct all aspects of the 500-member student organization, organizing Purdue's large quantum events, building faculty & company relations, budgeting, and discord communication to advance quantum education on campus.
- Led the redesign of the org's website to enhance user experience, automation, security, & organizational transparency.
- Develop and teach weekly quantum crash courses, publishing lessons on YouTube and lead project groups in research.

Ghost Imaging Project Group Founder — Aug 2024 – Jun 2025

- Founded and led a project group using Qiskit simulations to investigate applications of ghost imaging with entangled photons for enhanced medical diagnostics, such as early cancer detection.

Quantum Coalition (QC), International 501(c)(3) Non-Profit
Executive Board Member (Membership Manager & Learning Resources Lead) — Sep 2025 – Present

- Manage and grow the coalition's global membership & collaboration across 30+ universities & industry partners.
- Lead a global team to build and curate a centralized library of quantum resources between universities and using the library to train a machine learning model for a quantum AI tutor to enhance quantum education and its accessibility.

Future Leaders in Quantum (FLiQ) Hackathon Organizer, Challenge Designer, and Judge — Feb 2025 – Jul 2025

- Co-organized the global FLiQ hackathon with the UN's ITU and sponsors like IBM & Classiq for 150+ participants.
- Designed and judged the art track challenges as Purdue's representative with Princeton and MOTH Quantum.
- Moderated AI for Good program with Quantum Village Co-Founder & Director Victoria Kumaran to 500+ viewers.

IEEE, Systems, Man, and Cybernetics Society (SMC), Purdue University
Research Group Member — Aug 2024 – Present

- Analyzing and taking data with custom EEG to identify potential biomarkers for early concussion detection.