Sean O'Connor

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Education

Bucknell University — **Lewisburg, PA**
Bachelor of Science in Computer Science and Engineering — **Expected Graduation: May 2026**

- Cumulative Engineering GPA: 3.86. Dean's List: Fall 2022, Fall 2023, Spring 2024, Fall 2024, Spring 2025

Experience

Riverhead Raceway — **Riverhead, NY**
Software Developer — **Oct 2020 – Present**

- Transformed organizational culture by building trust in data-driven decision making, replacing manual paper-based workflows with integrated digital solutions that eliminated processing delays and improved operational efficiency
- Revolutionized fan engagement through a real-time statistics platform serving 1500+ concurrent users, enabling spectators and racers to access live standings and plan race attendance more effectively
- Empowered non-technical staff with intuitive content management tools, enabling immediate publication of race results and statistics rather than posting physical papers on walls days after events
- Modernized entire technical infrastructure through containerization and automated systems, ensuring reliable operations and remote support capabilities

Bucknell University — **Lewisburg, PA**
Computer Science Researcher - Human-Robot Interaction — **Jan 2023 – Present**

- Developed a web-based platform for human-robot interaction experiments that addresses reproducibility challenges in Wizard-of-Oz studies, contributing to improved experimental rigor in the field
- Led research and authored first-author paper presented at international conference, with second publication forthcoming based on continued platform development
- Built framework that enables researchers to conduct experiments across different robot platforms without specialized programming knowledge, lowering technical barriers to HRI research

Computer Science Research Assistant - Chemical Engineering Department — **Aug 2023 – May 2025**

- Built automated data collection tools that enabled researchers to focus on analysis rather than manual data gathering, providing critical environmental measurements that guided research direction
- Developed technical solutions that supported conference presentations and research outcomes, bridging the gap between engineering expertise and domain-specific research needs

Teaching Assistant & Engineering Tutor — **Aug 2023 - Present**

- Mentored students across computer science, engineering, and physics using a pedagogical approach that connects theoretical concepts to real-world applications through recently-acquired student perspective
- Developed learning environments that embrace productive failure, enabling students to understand the "why" behind programming and engineering concepts rather than just memorizing procedures
- Created automated testing frameworks and personalized feedback systems that streamlined grading while providing students with detailed, actionable guidance for improvement

Activities

AIChE Chem-E-Car Competition Team — **Lewisburg, PA**
President, Electrical and Mechanical Team Lead — **Jan 2023 – Present**

- Pioneered team's first custom hardware solution by designing and fabricating a microcontroller-based control system with isolated power circuits for hydrogen fuel cell regulation, implementing finite state machine architecture integrating spectrometer readings, relay control, and LED feedback for real-time reaction monitoring
- Improved team dynamics by introducing agile development principles and structured communication protocols, then strategically transitioned from leadership role to focused technical contribution while remaining active team member, recognizing that direct engineering impact would better serve team objectives

Publications

[1] Sean O'Connor and L. Felipe Perrone. HRIStudio: A Framework for Wizard-of-Oz Experiments in Human-Robot Interaction Studies (Late Breaking Report). In *2024 33rd IEEE International Conference on Robot and Human Interactive Communication (RO-MAN)*, 2024.

[2] Sean O'Connor and L. Felipe Perrone. A Web-Based Wizard-of-Oz platform for collaborative and reproducible Human-Robot Interaction research. In *2025 34th IEEE International Conference on Robot and Human Interactive Communication (RO-MAN)*, Eindhoven, The Netherlands, 2025. Accepted for publication.

Relevant Coursework

Systems & Architecture: Computer Systems, Operating Systems Design, Computer Networks & Security
Software Development: Software Engineering, Algorithm Design & Analysis, Research Methods, Ethics in Computing
Mathematics: Calculus II, Linear Algebra, Discrete Mathematics, Statistics, Data Mining

Skills & Interests

Languages & Frameworks: Java, C/C++, Python, JavaScript/TypeScript, React, Next.js, PHP, SQL
Backend & DevOps: REST APIs, MySQL, PostgreSQL, Docker, Apache Web Server, NGINX, ROS2
Cloud & Infrastructure: AWS, GCP, Azure, Backblaze, Linux (RHEL/Debian), CI/CD
Development Tools: Git, JetBrains Suite, VS Code, Cursor, Linux CLI