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: 3.90. Dean's List: Fall 2022, Fall 2023, Spring 2024

EXPERIENCE

RIVERHEAD RACEWAY   **RIVERHEAD, NY**
Software Developer   **Oct 2020 – Apr 2024**
- Engineered a digital registration platform that modernized paper-based processes, integrating payment processing and real-time number availability checking, eliminating manual processing delays
- Built and deployed a high-performance race statistics platform serving 1500+ concurrent users, providing real-time access to driver positions, rankings, and lineups, replacing physical bulletin boards
- Developed an intuitive content management system tailored for non-technical staff, enabling content management through familiar interfaces while maintaining website consistency
- Orchestrated migration to containerized architecture using Docker and implemented automated backup systems to improve reliability

BUCKNELL UNIVERSITY   **LEWISBURG, PA**
Computer Science Researcher - Human-Robot Interaction   **Jan 2023 – Present**
- Engineered a modular web-based experimental platform for human-robot interaction studies using the Wizard of Oz experimental paradigm and ROS2 and C++/Python, resulting in a first-author publication
- Co-founded and led weekly research discussions in a new lab bridging computer science and psychology perspectives on human-robot interaction

Computer Science Research Assistant - Chemical Engineering Department   **Aug 2023 – Present**
- Designed and implemented an automated data collection system using a microcontroller and C++ to collect real-time temperature, pressure, and humidity data in harsh environments
- Currently integrating robotic arm into existing coffee research project to automate repeated brewing-related tasks and data collection, freeing up researchers from unskilled repetitive work

Teaching Assistant & Engineering Tutor   **Aug 2023 - Present**
- Led lab sessions in computer science (agile development, Java programming), engineering (Arduino, embedded systems), and physics (discovery experiments and data analysis)
- Developed automated testing frameworks to streamline assignment grading and provide detailed personalized feedback
- Provided technical mentorship at the Engineering Study Spot, focusing on programming concepts and system design

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: designed and fabricated a microcontroller-based control system with isolated power circuits for hydrogen fuel cell regulation
- Implemented finite state machine architecture integrating spectrometer readings, relay control, and LED feedback for real-time reaction monitoring in isolated chamber conditions

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.

RELEVANT COURSEWORK

Systems & Architecture: Computer Systems, Operating Systems Design, Computer Networks & Security
Software Development: Software Engineering, Data Structures & Algorithms, Research Methods, Ethics in Computing
Mathematics: Calculus II, Linear Algebra, Discrete Mathematics, Statistics, Applied Statistics with R, 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