

Ian Spehar, EI

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Education

Oregon State University, Corvallis

M.S. in Mechanical Engineering, Robotics Minor

Grad Date: June 2026

GPA: 3.65

B.S. in Mechanical Engineering, Spanish Minor

June 2024

University of Salamanca, Spain

Study Abroad, Spanish Language and Culture Studies

Fall 2023

Experience

Painting Robot

September - December 2024

- Developed Python software for a Kinova robot arm, "Pollock," to autonomously convert digital images into artistic brush strokes
- Created the core algorithm to analyze and translate image contours into sequenced brush stroke commands, using advanced pathing logic to replicate original images through painting

Automatic Rocket Tracker Team

January - July 2024

Team Lead

- Led the design and development of a fully functional automated antenna tracking system, designed to improve recovery procedures for the OSU High Altitude Rocket Team
- Engineered and implemented advanced Arduino control algorithm for optimized tracking automation

OSU Mars Rover Team

September 2024 - Present

Software Engineer

- Develop autonomous navigation algorithms for the rover, enabling obstacle detection, path planning, and real-time decision-making
- Integrate ROS-based programs to coordinate sensor data, decision-making processes, and hardware actuation

Projects

RC Car Personal Project

- Designed and built an RC car from scratch, utilizing a Raspberry Pi for control and automation
- Designed and manufactured the car's chassis and steering mechanism, creating a custom solution for precise control and durability

Skills

Programming: Python, ROS, C++, Linux, Matlab

Engineering Software: SolidWorks, COMSOL, EES, Excel

Certifications and Achievements

Engineering Intern (EI) - Passed Mechanical FE Exam, received certification from state board of Oregon

Activities

OSU Tau Beta Pi Chapter (Engineering Honors Society)

May 2022 - Present

HART Rocket Antenna Tracker → Experience

Rocket Antenna Tracker Team

- Creating prototype for an automatic antenna tracker to improve data collection and recovery methods for the OSU High Altitude Rocket Team (HART)
- Developed Arduino code which uses the rocket's GPS coordinates to actuate a stepper motor system, continuously keeping the antenna pointed at the rocket's flight computers to maintain connection
- Assisted in design and modeling of prototype concept with specifications aimed towards smooth and efficient antenna movement to optimize tracking

Painting Robot

September 2024 - Present

- Developed software for a Kinova robot arm, "Pollock," to autonomously convert digital images into artistic brush strokes
- Created the core algorithm to analyze and translate image contours into sequenced brush stroke commands, using advanced pathing logic to replicate original images through painting

Master's Thesis: Closed Loop Control of Robot Arm for LDED Manufacturing

Oregon State University | Location | Dates (In Progress)

Conducting research on developing a closed-loop control system for laser directed energy deposition to reduce defects in plasma-resistant materials for fusion power experiments. Exploring process optimization through real-time feedback to enhance material efficiency.

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Oregon State University IT

August 2021 - April 2023

IT Technician

- Helped over 20 customers per week by using technical problem solving to fix various computer issues
- Provided excellent customer service and technical assistance to professors and students on both Macs and PCs in an efficient manner
- Conducted personal training of 10+ employees per term to support IT program development

Homemade RC Car

Personal Project | Date

- Designed and built an RC car from scratch, utilizing a Raspberry Pi for control and automation.
- Developed and implemented all software, including code for motor control, sensor integration, and wireless communication.
- Automated the connection process for Bluetooth controller using Python and shell scripting.
- Designed and manufactured the car's chassis and steering mechanism, creating a custom solution for precise control and durability.

Candle Extinguisher → Projects
ME 351 Final Project → Projects

Software Engineer – Mars Rover Team
[University Name] | [Dates of Involvement]

- **Developed and implemented autonomous navigation algorithms for the Mars Rover, enabling obstacle detection, path planning, and real-time decision-making.**
- **Programmed rover systems in [programming languages, e.g., Python, C++] to integrate sensor data and optimize control logic for efficient navigation.**
- **Collaborated with a cross-functional team to design and test software modules, ensuring seamless integration with hardware components such as lidar, cameras, and encoders.**
- **Conducted simulations and field tests to validate navigation techniques, improving rover performance in dynamic and unstructured environments.**
- **Utilized [tools, e.g., ROS, Git] for version control, system debugging, and deploying software to embedded systems.**
- **Documented codebases and workflows to streamline knowledge sharing and ensure maintainability for future team members.**

Languages: Spanish (Intermediate)

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