Ian Spehar, EI

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Education

Oregon State University, Corvallis
M.S. in Mechanical Engineering, Robotics Minor — Expected Grad Date: June 2026

B.S. in Mechanical Engineering, Spanish Minor — Fall 2020 - June 2024

University of Salamanca, Salamanca, Spain
Study Abroad, Spanish Language and Culture Studies — September - December 2023

Experience

Automatic Rocket Tracker Team — January - July 2024
Team Lead
- Initiated and 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 to achieve 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

Oregon State University IT — August 2021 - Present
IT Technician
- Resolve technical issues for 20+ customers weekly, ensuring efficient support for Macs and PCs
- Deliver exceptional customer service to faculty and students
- Train 10+ employees per term to support IT program development

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/Software: Python, ROS, C++, Linux, Matlab

Engineering Tools: SolidWorks, COMSOL, EES, Excel

Certifications

Engineering Intern, State of Oregon
Passed Fundamentals of Engineering Exam, Mechanical, September 2024

Activities

OSU Tau Beta Pi Chapter (Engineering Honors Society) — May 2022 - Present

OSU Spanish Club January 2024 - 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

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)

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