

# ADAM BUIER

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## EDUCATION

### Worcester Polytechnic Institute (WPI), Worcester, MA

Dec 2027

B.S. Mechanical Engineering, B.S. Robotic Engineering

## EXPERIENCE

### Argonne National Lab

Lemont, IL

#### Undergraduate Research Aide (Aug 2025 - Present)

- Designed and simulated robotic systems using SolidWorks and Isaac Sim to validate mechanical functionality in high-fidelity virtual environments.
- Developed AI-integrated digital twins, utilizing machine learning to enhance robotic autonomy and system performance through iterative simulation.

#### Undergraduate Intern (May 2025 - Aug 2025)

- Built a digital twin of a nuclear facility in IsaacSim, enabling full simulation and automation of robotic operations.
- Designed robotic systems from CAD to simulation, developed custom ROS 2 controllers for Gazebo, and integrated VR for teleoperation on a dual 6-dof arm manipulator robot.
- Automated facility workflows using Python and state machines to coordinate complex robotic tasks and optimize workflow.

### Wisconsin HTS Axisymmetric Mirror

Madison, WI

#### Engineering Intern (May 2024 - Aug 2024)

- Designed and implemented stepper motor systems for a neutron detection probe using LabVIEW and SolidWorks, documenting performance in high magnetic field environments and presenting results.
- Rapidly prototyped a moisture detection switch using SolidWorks and 3D printing, improving cryogenic cooling system leak detection.

### Ma-Ka-Ja-Wan Scout Reservation

Pearson WI

#### Director, Counselor (June 2019 - Aug 2023)

## RELEVANT PROJECTS

### Robotic Arm Manipulator

2025

- Designed and programmed a 4-DOF robotic arm in Linux and MATLAB, incorporating computer vision for color-based object sorting.
- Performed kinematic and control analysis and maintained detailed design documentation.

### Combat Robot (BattleBots)

2024 - Present

- Designed, simulated, soldered, and built a 3lb combat robot using SolidWorks for 3D modeling and ANSYS for performance simulations.
- Produced detailed engineering documentation, utilizing Fusion 360 for CAM and GD&T principles to align CNC-machined parts with 3D-printed components.
- Earned a global ranking in the National Havoc Robot League (NHRL).

### Autonomous Collector Robot

2024

- Designed and programmed a robotic system with sensors and computer vision for autonomous object collection.
- Maintained thorough version control and engineering documentation for all design processes.

## SKILLS

**Programming:** Ros2, IsaacSim, Gazebo, Python, Java, C, C++, HTML, MATLAB, Arduino, LabVIEW

**Engineering Tools:** SolidWorks, Fusion 360, Onshape, ANSYS, KiCad

**Prototyping:** Documentation, 3D Printing, Machining (Vertical Mill, Lathe), Soldering, Welding

**Systems:** Linux/UNIX, Test Documentation, Workflow Optimization, Safety Protocols

## ACTIVITIES

Eagle Scout, 3D Printing Lab Monitor, School Mascot Manager