

ALEXANDER E. CABAN

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SKILLS

Engineering & Design: SolidWorks, Fusion 360, CAD Modeling, Mechanical Design, Tolerance Analysis, Structural Reasoning

Technical & Analytical: MATLAB, Engineering Analysis, Prototyping, Microsoft 365 (Excel, Word, Outlook, PowerPoint, Teams), Google Workspace, AI Proficiency

Professional: Team Collaboration, Communication, Adaptability, Time Management, Inventory Management

Languages: Fluent in English and Spanish

EDUCATION

University at Buffalo - The State University of New York | Buffalo, NY

Bachelor of Science in Mechanical Engineering Expected May 2027

Relevant Coursework: Mechanics of Solids, Engineering Materials, Dynamic Systems, CAD & Modeling, Programming for Engineers

Professional Involvement: UB ASME Member | 2024-2027

ENGINEERING PROJECTS & EXPERIENCE

Rover Design-IAM3D Competition | *Sept.2025 – April 2026*

- Collaborated with an engineering team to design a rover for a national competition, focusing on drivetrain layout, mechanical optimization, and system integration.
- Used CAD tools to develop and refine design iterations to improve rover performance in sand-terrain environments.
- Contributed to mechanical design decisions and integration of rover components.

ASME IAM3D – R.A.T.T.R.V. Design Team | *2026–Present*

- Collaborating with an engineering team to design and manufacture an unmanned all-terrain vehicle for the ASME IAM3D national competition.
- Designing mechanical components and chassis systems using CAD and additive manufacturing principles to improve durability, manufacturability, and vehicle performance.
- Developing a vehicle capable of retrieving and transporting a loaded wheeled trailer across ice, sand, and rocky terrain while maintaining stability and maneuverability.
- Applying iterative prototyping, structural analysis, and testing to evaluate designs and improve performance under competition constraints.

ASME Student Design Competition – PODIUM Robot Design | *2026–Present*

- Collaborating with an engineering team to design and develop a modular competition robot for the 2027 ASME Student Design Competition.
- Developing mechanical concepts for a multi-functional robotic platform capable of completing speed, lifting, object-handling, accuracy, and climbing challenges.
- Applying CAD, mechanical design, and engineering analysis to evaluate subsystem concepts while meeting competition size, weight, safety, and performance constraints.

Model Rocket Active Stabilization System – MAE 334

- Designed and developed an active rocket stabilization system integrating an Arduino, MPU6050 gyroscope/accelerometer, and servo-controlled fins that dynamically reacted to changes in rocket tilt and orientation.
- Developed a proportional feedback control system that processed real-time x- and y-axis motion data and commanded opposing fin movements to counteract changes in rocket orientation.
- CAD-modeled and 3D-printed a custom internal base to securely package the Arduino, sensor, and wiring within the rocket assembly.

Light-Following Autonomous Robot – Arduino Robotics Project - *Present*

- Building and programming an Arduino-based autonomous robot designed to detect and follow a light source using sensor feedback.
- Integrating light sensors, DC motors, motor-control electronics, and Arduino programming to translate environmental sensor readings into real-time vehicle movement.
- Developing and testing control logic that independently adjusted motor behavior based on the detected direction of the light source, enabling autonomous navigation.

Mechanical Boat Design - EAS 199

- Designed and built a battery-powered miniature boat through iterative prototyping and testing.
- Evaluated design performance and addressed center-of-mass issues to improve stability.
- Applied engineering problem-solving and design principles throughout development.

Jimmy Jazz | Jamaica, NY | Jan. 2024 - Aug. 2025

Sales Associate / Stock Runner

- Managed inventory of 500+ products daily, maintaining accurate stock levels and supporting efficient store operations.
- Assisted customers, resolved questions, and provided effective customer service.
- Balanced multiple responsibilities in a fast-paced environment while collaborating with team members to meet operational goals. Demonstrated reliability, organization, communication, and time-management skills.