# Alex Boggess

Mechanical Engineering

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To obtain a full-time position as a mechanical design engineer

## EDUCATION

### Mechanical Engineering
Worcester Polytechnic Institute (3.36 GPA)

*08/2016 – Present* — *Concentration in Mechanical Design and Minor in Robotics Engineering*

*Courses*
- Design of Machine Elements
- Kinematics of Mechanisms
- Analysis of Mechatronic Systems
- Advanced CAD (Creo)

## WORK EXPERIENCE

### Advanced CAD (Creo) Peer Learning Assistant
Worcester Polytechnic Institute

*01/2020 – Present* — *Worcester, MA*

*Achievements/Tasks*
- Supervised advanced CAD lab periods and assisted students to complete assignments in Creo

### Mechanical Engineering Intern
David Clark Company Incorporated

*05/2019 – 08/2019* — *Worcester, MA*

*Manufacturer for headset communication systems for high-noise environments*

*Achievements/Tasks*
- Designed parts that assisted floor workers during the manufacturing process including alignment tools and pneumatic actuated assembly station
- Developed testing stations for speakers and circuit boards for Quality Assurance
- Helped with design problems during new product development

## ORGANIZATIONS

Society of Manufacturing Engineering
(04/2017 – Present)
*General Body Member*

## SKILLS

Solidworks (CSWA) | Creo | MatLab | MathCAD | ESPRIT | Microsoft Suite | LabVIEW

## PERSONAL PROJECTS

### Self-Driving 3D Printed RC Car (08/2019 – Present)
- Collaborating in a team to design a modular 3D printed RC Car with front and rear suspension, and differential
- Utilizing MatLab to calculate forces on steering linkage and suspension
- Working with second team to implement self-driving capabilities using an Arduino and Raspberry Pi

### Laser Etch-a-sketch (08/2019 – 10/2019)
- Designed a laser Etch-a-sketch using high speed servos as galvanometers
- Users control the XY coordinates of the laser point with two potentiometers to draw, similar to an Etch-a-sketch

### Stirling Engine (01/2019 – 03/2019)
- Utilized computer-aided manufacturing to develop a stirling engine using ESPRIT software and HAAS Mini Mills

### Permaculture Design Plan (08/2018 – 12/2018)
- Collaborated in a group to research, develop, and propose a sustainable agriculture plan for a non-profit organization
- Organized weekly meetings with organization stakeholders to ensure stakeholder's expectations were met or exceeded
- Conducted interviews with local farmers and agriculture experts to further understand regional farming techniques

### Autonomous Mobile Robot with Environmental Awareness (10/2017 – 12/2017)
- Collaborated in a team to construct an autonomous mobile robot capable of discovering and extinguishing a flame
- Led the mechanical design of a unique two-axis gimbal system that manipulates a fan to extinguish a flame

### Autonomous Mobile Robot for Payload Manipulation and Delivery (08/2017 – 10/2017)
- Worked on a team of three to construct an autonomous robot capable of transferring a rod to an empty storage container
- Analytically determined linkage forces and optimal power transmission using free-body diagrams and PTC MathCAD

## CERTIFICATES

Certified Solidworks Associate