

Eli Broemer

Mechanical engineer

✉ broemere@gmail.com

☎ 517-862-5907

📍 Lansing, MI

🌐 [linkedin.com/in/broemere](https://www.linkedin.com/in/broemere)

WORK EXPERIENCE

Michigan State University

East Lansing, MI

Research Associate

September 2024 – Present

- Developing data analysis tools
- Design and fabrication of data collection devices

Research Assistant

January 2019 – May 2024

- Delivered results on 6 different cross-functional interdisciplinary teams across 12 major projects.
- Created 3D and finite element models of human thigh tissues to assess seating mechanics.
- Collaborated with team members to conceive of and prototype 4 mechanical testing devices to assess hyperelastic materials.
- Developed and validated computational models of mechanical behavior of elastic pressure vessels.
- Contributions directly led to the team securing \$2 million grant from National Institutes of Health.

Tailor Welded Blanks, LLC

Monroe, MI

Mechanical Engineering Intern

May 2017 – August 2017

- Designed and drafted weld quality inspection table for friction-stir weld line at a Tier 1 automotive supplier, which met or exceeded industry standards from the Machinery's Handbook.
- Oversaw project implementation, including structural analysis, parts sourcing, and cost analysis.
- Implemented Lean and Six Sigma principles by collaborating with line technicians in Kaizen events.
- Presented work to company president with highly positive feedback.

Michigan State University

East Lansing, MI

Computing Support Technician

October 2014 – December 2016

- Solved general software and hardware problems in customer-facing help desk.
- Provided personalized technical support for users with limited technical knowledge.
- Achieved selection for senior-level executive assignments.

LEADERSHIP EXPERIENCE

Michigan State University

East Lansing, MI

Seminar Leader

May 2022 – August 2022

- Directed weekly professional development seminars for 40+ engineering students.
- Prepared and delivered weekly presentation materials for lecture and group activities.
- Reviewed student work and provided feedback on areas for improvement.

Engineering Mentor

January 2017 – May 2020

- Mentored 30+ engineering students one-on-one with tutoring and professional support.
- Actively and dynamically engaged with students to locate gaps in their engineering knowledge.
- Improved student achievement and motivation based on individuals' feedback.

VOLUNTEERING

Ingham County School District

Mason, MI

Engineering Lab Instructor

January 2019 – May 2019

- Engaged vocational school students with personal hands-on engineering projects.
- Advised on the art, techniques, and design standards for student projects.
- Showing mechanical and circuit design concepts without the mathematics.

Michigan State University

East Lansing, MI

Computer Science Tutor

January 2017 – May 2017

- Explained computer science concepts for business and engineering students.
- Instructed through one-on-one sessions and larger collaborative workshops.

PROJECTS

Portfolio: broemere.com

Impact Testing Device

Design and fabrication of an oblique impact fatigue testing device. Delivered fully functional prototype capable of >1500 lbs. impact force. Awarded Edison design award by Michigan State University Dept of Mechanical Engineering.

Car/ Bicycle Maintenance

General repair and preventative maintenance of vehicle and bicycles. Engine work, body panel replacement, and painting. Vintage road bike builds with period parts.

Woodworking

Design and construction of furniture including chair, bedframe, desks, and bookshelves.

SKILLS

Professional:

Project management, leadership, collaboration, critical thinking

Technical:

Mechanical design, Computer Aided Design, structural analysis, Finite Element Analysis, Prototyping and rapid development

Software:

AutoCAD, Solidworks, Siemens NX, Python, MS Office