

Mark Monie

Mechanical Engineering Junior, Purdue University
+1(765) 694-5888 | mmonie@purdue.edu | [linkedin.com/in/mark-monie](https://www.linkedin.com/in/mark-monie) **GPA: 3.86**

SUMMARY

Hands-on Mechanical Engineering student with real-world experience in design, analysis, & prototyping. Completed an electric skateboard project from concept to functional prototype, leveraging expertise in key tools like CAD, 3D Printing, Design for Manufacturability, Control Systems Programming (C++) & Data Analysis in MATLAB, seeking to enhance my skills at a Co-op/internship.

EDUCATION

- **Purdue University**, West Lafayette, IN, GPA: 3.86 / 4.00
Bachelor of Science in Mechanical Engineering | August 2023 - May 2027
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TECHNICAL SKILLS

- **CAD & Simulation:** Siemens NX, Creo, Fusion 360 (CAM).
 - **Programming & Analysis:** MATLAB (Data Analysis), C++ (Control Systems).
 - **Manufacturing:** Mill & Lathe Operation (Including CNC), 3D Printing, Laser Cutting.
 - **Engineering Fundamentals:** Fluid Mechanics, Dynamics, Measurement & Control Systems, Mechanics of Materials, Computer-Aided Design and Prototyping, Linear Algebra, Partial Differential Equations
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KEY ACHIEVEMENTS

Electric Skateboard Design & Build | Personal Project

- Designed & built a 16s6p battery; Delivered 200 amps at 67V, focusing on safety & reliability.
 - Integrated pressure sensors to estimate the force applied by each foot to calculate the tipping state of the rider.
 - CNC-milled aluminium housing for pressure sensors to better distribute load.
 - Designed an Arduino circuit & C++ program controller to automatically adjust the PWM throttle signal based on the rider's tipping state, allowing power to be reduced momentarily if the rider begins to tip off the back of the board; reduced the 5-run average 0-25mph time from 2.93 sec to 2.38 sec.
 - Created testing procedures for sensor calibration & calibration validation.
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WORK EXPERIENCE

Peer Mentor | Bechtel Innovation Design Center - BIDC (Aug 2025 - To Date)

- Instructed students in CAD/CAM workflows, CNC gantry operations & 3D printing for rapid production of complex parts.
- Consulted with student teams & organizations on project designs, providing advice on manufacturability & optimizing machining efficiency.

Peer Mentor | Purdue University, Mechanical Engineering Machine Shop (May 2025 – August 2025)

- Mentored users in developing precise machining plans, including selecting cutting tools, feeds, & speeds for efficient production.

Teaching Assistant (Statics) | Purdue University | August 2024 - December 2024)

- Graded & provided feedback on assignments, quizzes & exams for a class of over 100 students.
 - Hosted weekly office hours to explain complex statics concepts, improving student comprehension & problem-solving skills.
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RESEARCH EXPERIENCE

- Designed & conducted an experiment on a bicycle to find the impact of tyre pressure on rolling resistance
 - Lab research on the impact of hydration shell size on boiling point elevation in group 1 chloride solutions
 - Designed a novel experimental procedure using a distillation setup that increased the number of collected datapoints from 5 to 50 and reduced the amount of chemicals required by 80%.
 - Conducted preliminary trials to gauge the expected results, reducing time spent on subsequent testing by 50%
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LEADERSHIP

Academic Chair | Sigma Phi Epsilon Fraternity | (August 2024 – May 2025)

- Developed & managed scholarship programs to reward high academic achievement, contributing to the chapter maintaining the highest cumulative GPA (3.45) on campus.
- Tutored fraternity members to improve academic performance.