

# PAUL JACOBSON

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## EDUCATION

University of Wisconsin Platteville

2023

Bachelor of Science in Engineering Physics, Minor in Computer Science

GPA 3.47

## SKILLS

Technical Skills

SOLIDWORKS, Onshape, Fusion 360,

Secondary Technical Skills

3D Printing, L<sup>A</sup>T<sub>E</sub>X, Matlab

## EXPERIENCE

Electronic Theater Controls

Middleton, WI

Advanced Research Group Extern

Jun 2022 - Aug 2022

- Conducted research on color space and human color perception, utilizing Python for test equipment interfacing and data analysis. Additionally, engineered fixtures to optimize experimental equipment.

Wire Harness Assembler

Seasonally Jun 2017 - Jan 2023

- Manufacturing wire harnesses using technical drawings to high-quality specifications

## RELEVANT CLASSES & ASSOCIATED PROJECTS

- |                            |  |  |
|----------------------------|--|--|
| • Advanced Instrumentation | • Design, Fab. & Sim. of MEMS <sup>1</sup> | • Engineering Physics Senior Design <sup>3</sup> |
| • Applied Mechanics        | • Design of Machine Elements <sup>2</sup>  | • Engineering Quantum Mechanics <sup>4</sup>     |
| • Applied Optics           | • Electric and Magnetic Fields             | • Mechanical Vibrations                          |
| • Automatic Controls       | • Engineering Materials                    | • Mechanisms and Machines <sup>5</sup>           |
| • Circuit Modeling I&II    | • Engineering Physics Lab                  | • Sensors Lab <sup>6</sup>                       |

1. **Simulation of a MEMS heat-sink:** Developed a manufacturable Micro-Electro-Mechanical Systems (MEMS) heat sink and simulated its thermal properties using Ansys. The simulation ensured compliance with manufacturing constraints while optimizing thermal performance.

2. **Gear Box:** Designed a gearbox adhering to specified constraints including size, torque, and wear and fatigue parameters. Documented the design process, and analysis outcomes in a comprehensive professional report.

3. **Pre-Writing Pen:** Developed a machine-learning-enabled pen housing to facilitate pre-writing skills in developmentally delayed or young students. Contributed to training the ML model, designed the integrated circuitry, and led a comprehensive redesign of the mechanical system to meet project constraints.

4. **Quantum Well Superlattice:** Utilized class-acquired knowledge to develop a MATLAB application that models the probability function of a quantum superlattice.

5. **Walking Machine:** Engineered and fabricated a four-bar walking machine, employing both computational modeling and hands-on assembly techniques.

6. **RPM Sensor:** Developed an RPM sensor using Arduino and interrupts, integrating an optical sensor through custom circuit design. Implemented real-time RPM data output via a 7-segment display and achieved motor speed control by interfacing with an existing speed controller.

## EXTRA-CURRICULAR ACTIVITIES

- Plastic Recycling Research: Worked with Dr. Jodi Prosis at UW-Platteville on sustainable plastic recycling in developing countries. Developed components for a plastic extruder and shredder.
- Engaged in Campus Clubs: Active member in Pioneer Drone Club, Society of Automotive Engineers - Aero, Society of Physics Students, and Amateur Radio Club at UW-Platteville.
- Skilled in 3D Printing: Experienced in assembling, calibrating, and troubleshooting 3D printers.

## LEADERSHIP

- President of the Pioneer Drone Club at UW-Platteville, led club operations, managed equipment, and coordinated educational events focused on FPV drone piloting. This leadership role was complemented by specialized expertise in designing, building, and piloting FPV drones, in accordance with safety and regulatory standards.