

Neil Armstrong

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SUMMARY

Junior Mechanical Engineering student at MSOE with extensive team-based engineering project experience working on sorting mechanisms, aerospace, and new product design. Devoting 7+ hours a week to co-curricular involvement with full academic course load. Skills in MATLAB, AutoCAD, and SOLIDWORKS.

EDUCATION

B.S. Mechanical Engineering | Milwaukee School of Engineering | GPA 3.38 | Expected November 20XX

ENGINEERING PROJECT EXPERIENCE

Objective: Design automatic garbage sorter: 3 types of waste & 3 repositories within 2 minutes, using only 1 servo, 1 motor, 1 light sensor, 1 limit switch.

- Designed original prototype using motorized conveyor belt for garbage (marbles), 3 color detecting light sensor with centering mechanism, and rotating gear driven turntable sorting bin mechanism.
- Developed code for sensors and servos based on light values to optimize sorting operation using RobotC.
- Wrote technical report and presented to professor and classmates.

Results: Sorting took only 1 minute and was 80% efficient.

CO-CURRICULAR ENGINEERING PROJECT EXPERIENCE

Objective: Design and construct a high-power, 2-stage rocket to be safely recovered in flyable condition for regional competition: predict the rocket flight performance, collect down-looking on-board video from dart, construct non-commercial on-board data collection package to characterize dart rotation about the X, Y, and Z axes over time.

- Created preliminary design report (PDR) with viable design, operation, and cost.
- Designed prototype using OpenRocket to include cone with scissors linkage mechanism separation method; collected and analyzed test data, modified design for optimal performance.
- Created critical design report (CDR), with final rocket models.
- Fabricating design, testing in real time, collecting & analyzing data for potential design modification.

INDEPENDENT ENGINEERING PROJECT EXPERIENCE

Objective: Design and build a high-velocity, portable railgun for minimum power consumption, highest velocity, and shortest charge time, within \$750 budget.

- Divided design into three main parts: charging circuit, initial velocity system, and rail design.
- Drafted charging circuit based on disposable camera capacitor charging circuit template.
- Designed initial velocity system that uses spring to propel bullet.
- Simulated higher powered circuit using Falstad online circuit simulator.
- Designed rail system that uses two, half-inch thick copper rails.
- Predicting forces created by railgun and optimizing for highest velocity.
- Building housing using 3D printer and blast-resistant material.

TECHNICAL SKILLS

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|-----------------------|-----------------------------|--------------|
| ▪ Prototyping | ▪ Falstad Circuit Simulator | ▪ OpenRocket |
| ▪ 2D and 3D modelling | ▪ Drafting | ▪ MATLAB |
| ▪ AutoCAD | ▪ RobotC | ▪ SolidWorks |

CO-CURRICULAR INVOLVEMENT

Member | American Institute of Aeronautics and Astronautics (AIAA) | October 20XX - Present | 4 hrs/wk

Member | MSOE Rocket Team | October 20XX - Present | 3 hrs/wk

Passive Member | American Society of Mechanical Engineers (ASME) | September 20XX - Present