

Collin C. Miller

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| 6415 Buehler RD, Freeport, MI 49325 |

Education

Michigan Technological University | Houghton, MI

B.S. in Mechanical Engineering | Minor in Aerospace Engineering | GPA 3.46

Expected Graduation, Dec. 2022

Research Experience

Michigan Technological University | Houghton, MI

May 2020 – Present

Research Assistant | Planetary Surface Technology Development Lab (PSTDL)

The PSTDL develops technologies for exploring planetary surfaces as well as technologies for In-Situ Resource Utilization.

PSTDL Projects:

T-REX Rover

May 2020 – January 2021

This project developed a lunar rover capable of transmitting large amounts of power to permanently shaded regions located in the polar regions of the moon using an innovative super-conducting tether. This rover was developed for NASA's BIG Idea challenge and ended up winning the highest honor Artemis award.

- Designed a 3D-printable wheel for the T-REX rover to save on manufacturing time
- Designed major components for the chassis of the rover
- Manufactured components using CNC mills, lathes, band saws, and drill presses
- Conducted mobility tests in a lunar regolith simulant sandbox, requiring the use of a positive pressure ventilator
- Presented in front of a panel of NASA judges, including the NASA administrator

LuSTR

Fall 2019 – Present

Upgraded a large field rover to be used as a modular rover that can carry a variety of instruments including a ground penetrating radar and a percussive hot cone penetrometer for use in NASA's LuSTR grant

- Designed and built a subframe to house bearings and axles to eliminate movement which caused the axles to become misaligned
- Identified weak points in the field rover and developed solutions
- Improved drivetrain by moving drive motors in-board the chassis instead of being exposed
- Conducted mobility tests in relevant environments and used findings to improve problem areas

Internship Experience

Specialty Tooling Systems | Grand Rapids, MI

May 2022 – August 2022

Controls Engineering Intern

Specialty Tooling Systems designs and builds industrial assembly lines for Tier 1 manufacturers.

- Programmed industrial assembly line robots using Fanuc Roboguide software
- Performed reach studies for assembly line robots to verify CAD layout of assembly line furniture
- Communicated findings to the manager in one-on-one meetings
- Modified existing programs to fix errors found when integrating robots in assembly lines

Minimax Viking | Hastings, MI

May 2019 – August 2019

Research and Development Intern

Minimax Viking specialize in developing and manufacturing fire suppression equipment, especially fire suppression sprinklers.

- Developed a material testing program to identify whether out-of-spec coil stock could be used or if it would need to be scrapped
- Updated AutoCAD drawings to fit new company standards
- Monitored quality assurance tests and recorded results
- Set up burn tests for assessing sprinkler spray patterns

Leadership

Multiplanetary Innovation Enterprise

September 2020 – Present

Sub Team Lead | System Integration Team and Excavation Sub Team

- Led several teams of students working on developing a bucket elevator excavator for NASA's Lunabotics competition
- Conducted weekly meetings where I assigned tasks to team members and tracked their progress
- Presented updates during weekly enterprise meetings

Skills

Software: Siemens NX, SolidWorks, Inventor, AutoCAD, Amesim, MATLAB, Hyperworks, Blender, Fanuc Roboguide

Technical: CNC Mill, Lathe, Drill Press, Band Saw, Additive Manufacturing, Welding

Communication: Technical Report Writing, Memos, Presentations