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Matthew Spencer

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OBJECTIVE

To find full-time employment as a remote or local research engineer after I complete my Master's degree at Michigan Technological University in Electrical and Computer Engineering. My long-term goal is to continue doing research work relating to Autonomous Vehicle simulations.

EDUCATION

Michigan Technological University — Houghton, MI
BS Computer Engineering — **Graduated May 2020**
GPA: 3.19 | **Department GPA:** 3.25

MS Computer & Electrical Engineering — **Expected May 2022**
GPA: 3.75

PUBLISHED WORKS

MS Thesis: Off Road Autonomous Vehicle Modeling and Repeatability using Real World Telemetry via Simulation
Other: https://mpspencer93.github.io/Papers/

ENGINEERING WORK EXPERIENCE

Employer: Keweenaw Research Center — May 2018 - Present
Objective: To work together with many engineering disciplines in developing government funded research projects.

- Designed and developed a UE4 real-time GPS simulation program utilizing UDP connections to a ROS microcontroller aboard a military vehicle.
- Currently creating a custom control implementation within a UE4 simulation that dynamically drives the vehicle based on previously recorded vehicle telemetry over an imported terrain mesh of a real environment. Uses custom programmed physics along within the engine to log and record simulation data for comparison.
- Accurately simulated real world geometry obtained from an XML format within UE4.
- Chartered the beginning of a custom 3D mesh editor application utilizing OpenGL and C++ for Windows.
- Created a web-based HTML application for full time employees to check out part numbers, where the server saves a record of previous parts for employee reference through the application.
- Helped an effort to find the time delta at the hardware level between two master clocks synced to local GPS. Built the project using lower level languages, including C.
- Worked full time throughout the summer and ~10 hours per week during the school year.

ENTERPRISE PROJECT EXPERIENCE

Project: Husky Games Arcade Cabinet — September 2018 - January 2020
Objective: To develop and design an arcade cabinet to showcase video games created by Michigan Tech enterprise students.

- Was team lead on designing and implementing a custom user-interface for students to play and upload games onto the cabinet. The software uses a mix of Python, C#, and C.
- Outfitted and wired the cabinet with a custom-built computer and arcade stick controls running Windows 10.
- Self-taught carpentry necessary to design a retro-themed arcade cabinet from wood material, this included how to stain and finish the wood material as well.

INTERNSHIP EXPERIENCE

Employer: Jackson National Life Insurance — October 2017 - May 2018
Objective: To assist full time employees in the development of financial software applications from a remote office located within Michigan Tech's "SmartZone" building.

- Was a java software developer for the "Output Solutions" team.
- Helped keep updated SQL databases for project development.
- Was a team leader in testing/developing current software applications.

ENGINEERING PROJECT EXPERIENCE

Project: Campus Organization Website — June 2017 - July 2017
Objective: To develop a website capable of tracking/managing musical dates, musician profiles, and scheduling events

for an on-campus organization.
- Self-taught CSS, PHP, HTML, JavaScript, and MySQL to complete the project.
- Constructed server-side code and a MariaDB database to handle profile information with PHP and MySQL.
- Successfully deployed website onto a hosted server provider for use by the organization.

COMPUTER/TECHNICAL SKILLS

- C, C#, C++, ROS
- Java, Javascript
- Verilog, FPGAs, CANbus
- Bitbucket, Git
- Python, MATLAB
- UE4, OpenGL
- TCP/UDP Networking
- Image Processing
- HTML, CSS3
- PHP, mySQL
- Windows/UNIX OS
- Neural Networks

VOLUNTEER HISTORY

Homeless Shelter | Room at the Inn | Marquette, MI — August 2015 - August 2016
His House | Marquette / Houghton, MI — April 2015 – May 2019