Andrew Scheffer

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Education

University of Michigan **Ann Arbor, MI**

Bachelor of Science: Computer Science and Engineering (Minor: Physics) *May 2023*

GPA: 3.97/4.00

Relevant Coursework: Operating Systems, Advanced Autonomous Robotics, Computer Vision, Autonomous Robotics, Data Structures and Algorithms, Computer Organization, Statistics

Work/Research Experience

Garmin Internship **Olathe, KS**

Software Engineering Intern *May 2022 - Aug 2022*

- Formulated both modular and fuzz testing schemes in an effort to rigorously certify a new graphics driver to be used in Garmin's aviation products
- Identified and developed significant modifications to the automated testing framework by creating new testing tools using libclang
- Developed an entire graphics pipeline in C++ using the Vulkan API

MIT Proto Ventures Healthcare Internship **Virtual**

Researcher - Luis Soenskin *June 2020 - Present*

- Successfully preprocessed hundreds of thousands of images of dermatological diseases employing computer vision algorithms in Python and exported trained model to iOS app with Swift
- Spearheaded the development of a dataset that differentiates both body parts and Fitzpatrick skin types in images to be used by telehealth systems to provide more equitable care to underrepresented groups
- Implemented computer vision algorithms such as foreground segmentation, body pose classification, feature matching, and noise filtering to quickly and efficiently preprocess image data

MSU Extension Internship **Midland, MI**

Computing Intern and Research Fellow *Summer 2019, 2020*

- Responsible for writing python code with a team to create a convolutional neural network-based system to predict H-NMR coupling constants based on 3D atom vector coordinates
- Formulated a least-squares error mitigation algorithm for entangled qubits in a quantum computer

Project Experience

Michigan Autonomous Aerial Vehicles (MAAV) **Ann Arbor, MI**

Software Team Lead *September 2020 - Present*

- Responsible for designing and implementing a completely autonomous software stack for a quadrotor using ROS integrated with the PX4 flight controller
- Recent projects include designing a Docker environment to support a seamless development environment, implementing a depth camera driver that publishes data to ROS, and writing a waypoint generator script
- Manage the development and integration of path planning, localization, and computer vision algorithms
- Teach new members fundamentals of robotics and software development (version control, forward/inverse kinematics, ROS, etc)

C++ Chess Engine **Ann Arbor, MI**

Primary Contributor *November 2020 - Present*

- Created a 1-player C++ chess engine from scratch using SDL and OpenGL
- Implemented an alpha-beta pruning search technique to quickly generate and evaluate moves

AR Architecture App **Ann Arbor, MI**

App Developer *May 2021 - August 2021*

- Researched, designed, and programmed an IOS app that allows users to scan white architectural models and make .obj files using 3D feature point placement.
- Worked with EIPC at UofM to create photogrammetry solutions for architectural modeling

Relevant Activities

Michigan Hackers, *iOS Team Lead* *Sept 2020 - Present*

Midland FTC Team, *Student Mentor* *July 2016 - July 2020*