Andrew Scheffer

drewskis@umich.edu • (989) 750-4753 • 1770 Broadway St., Ann Arbor, MI

Education

University of Michigan	**Ann Arbor, MI**
Masters of Engineering: Computer Engineering	*May 2024*
Bachelor of Science: Computer Science and Engineering (Minor: Physics)	*May 2023*

GPA: 3.97/4.00

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

Work/Research Experience

NASA Jet Propulsion Laboratory   **Pasadena, CA**
Robotics Simulation Intern   *May 2023 - Present*
- Deployed software-in-the-loop simulation features relating to downlink command parsing, rover kinematic state, and rover collision modeling for Mars 2020 and Mars Sample Return missions
- Developed a custom deterministic multithreading library in C++ from scratch for use in the Mars Sample Return surface simulation stack

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 Research   **Virtual**
Researcher - Luis Soenskin   *June 2020 - April 2022*
- 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

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 - Aug 2023*