Ryan Anderson

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PROFESSIONAL SUMMARY

Current Master's student specializing in Robotics, machine learning, and software development graduating in Spring 2024. Have a strong foundation in various programming languages, including C++, Python, C#, and Javascript. Highly motivated to improve as a developer to further the knowledge gained through coursework, projects, and employment.

EDUCATION

Master's Degree, Computer Science **Expected: May 2024**
Utah State University, Logan, Utah

- The thesis is a Game Engine built from the ground up in C++ with OpenGL graphics, easy integration of Reinforcement Learning algorithms, and an emphasis on easy deployment outside the environment. Several simple games are being developed and a DDPG is being deployed on each as a proof of concept. The aim is to build an environment that is easily extensible and deployable on robots and other situations.

Bachelor's Degree, Computer Science **May 2022**
Utah State University, Logan, Utah

- Magna Cum Laude
- Dean's List

Bachelor's Degree, Mathematics with Computational Mathematics Emphasis **May 2022**
Utah State University, Logan, Utah

- Magna Cum Laude
- Dean's List

EXPERIENCE

Graduate Research Assistant **April 2022 - Current**
***ASPIRE ERC*, Logan, Utah**

- Architected and developed a database and visualization infrastructure for all Utah Transit Authority charging stations and bus data collection, built in React and Postgres.
- Developed OCPP standard integration server to control chargers across Utah that are actively being used.
- Built a Charging Reservation system that is deployed at the Electric Vehicle Roadway utilizing React, Sqlite, and REST APIs.
- Developed Machine Learning Algorithms using Python and Pytorch to predict energy usage at facilities and control chargers to load balance.

Robotics Researcher **April 2022 - Current**
DIRECT Lab, Logan, Utah

- Investigate Robotics applications in Human Trajectory prediction and navigation using Pytorch LSTM prediction algorithms.
- Research Stealth navigation utilizing ROS2 and both simulation and hardware platforms
- Published paper to the International Conference on Intelligent Transportation Systems on reduction of power costs of charging based on a prediction engine that lowered costs around 24%-37% monthly while offering a faster charge rate
- Use Python, Pytorch, Javascript, C#, and C++ for development and utilize Docker containers for reproducibility.

Software Engineering Intern **January 2022 - April 2022**
Juniper Systems, Logan, Utah

- Developed Web and Mobile Development using .NET, Blazor, and Xamarin to build apps working with GPS systems and Agricultural systems.
- Used Git for version control and JIRA for bug tracking and Agile sprint planning.

Web Development **May 2021 - August 2021 (Summer 2021)**
Utah State University, Logan, Utah

- Architected, designed, and developed a Hacking Challenge for the Web Development course at Utah State University. Built the system with a Vue frontend and Django backend, deploying the server to a Digital Ocean Droplet.

Web Development Teaching Assistant **January 2020 - January 2022**
Utah State University, Logan, Utah

- Taught Javascript, HTML, CSS, Django, and Vue to incoming students.
- Helped run the course with the Professor, as well as held office hours every week

SKILLS

Python, PyTorch, Tensorflow, Pandas, Scikit-Learn, OpenCV, Django, C#, Unity, .NET, Unreal Engine 5, C++, C, JavaScript, TypeScript, Vue, React, React Native, React Native Expo, Flutter, Sequelize, Sqlite3, Postgres, Rest APIs, MVC, MVVM, Java, Kotlin, ROS1, ROS2, Go

AWARDS/VOLUNTEER WORK

- Second Place in Game Development at HackUSU 2023 March 2023
- First Place in Game Development at HackUSU 2022 March 2022
- Church of Jesus Christ of Latter-Day Saints Mission - Belarus June 2016 - June 2018

RESEARCH

- **Anderson, R.**, Harper, M., (2023). Save Money, Get Charged: Facility-Tied Energy Management with Unknown and Unscheduled EV Charging. *International Conference on Intelligent Transportation Systems.*
- **Anderson, R.,** Anderson, T., Bailey, C., Anderson, J., Harper, M., (2023) Stealth Centric A*: Bio-Inspired Navigation for Ground Robots. *International Robotics Conference*.
- Anderson, J., **Anderson, R.**, Anderson, T., Bailey, C., & Harper, M. (2023). Stealth Centric Autonomous Robot Simulator (SCARS). *Software Impacts*, 16, 100497.
- **Anderson, R.**, Anderson, J., Anderson, T., & Harper, M. (2023). Charger Reservation Web Application. *Software Impacts*, 18, 100589.
- **Anderson, R.**, Anderson, T., & Harper, M. (2022). Power and transportation collection and visualization. *Software Impacts,* 14, 100386.

RELEVANT COURSEWORK

- Deep Learning Theory and Applications - STAT 6685
- Intelligent Systems - CS 5600
- Reinforcement Learning - CS 5640
- Robot Intelligence - CS 5510
- Algorithms Under Uncertainty - CS 5060
- Game Development - CS 5410
- Computer Graphics - CS 5400
- Introduction to Interactive Virtual Reality - CS 5470

- Data Mining - CS 6665
- High-Performance Computing - CS 5030
- Advanced Algorithms - CS 5050

LANGUAGES

- English - Fluent
- Russian - Advanced
- Japanese - Basic

PROJECTS

- Developed an Expo React Native application called RecolleX for a client, which is currently on TestFlight and will be on the Google Play Store soon.
- Currently developing an Acoustic Stealth Navigation paper that utilizes ROS2 and aims to navigate from point A to point B without being heard using acoustic propagation estimations.
- Developing my own Game Engine, writing everything from scratch including OpenGL graphics, in C++. (Github: https://github.com/sonorousduck/Ebony)
- Developed 20 of the 30 puzzle maps for “That Makes Sense”, a game published on Steam.
- Personal Portfolio website developed using React and AWS: www.sonorousduck.com
- Developed a Deep Reinforcement agent to play Super Smash Melee. Django was used to build a server-client model to perform training across a distributed system. https://github.com/sonorousduck/SuperSmashBot