Daniel Zhan

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Education

Johns Hopkins University - M.S. Artificial Intelligence: expected Aug. 2025

Notable Coursework: Artificial Intelligence, Reinforcement Learning, Intro to Robotics, Algorithms, Mathematical Methods

(This is a remote, part-time Master's program. I am available for full-time roles immediately.)

Cornell University - B.S. Computer Science, Engineering Physics: graduated May 2023

Notable Coursework: Machine Learning, Robot Learning, Algorithms, Operating Systems, Computer System Organization

Served as a Teaching Assistant for: Mechanics and Heat, Electromagnetism, Waves and Quantum Physics, Data Analytics

Experience

Software Engineer - Lockheed Martin | Aug. 2023 - Present | (Secret Clearance)

- Designed a MATLAB-based simulation driver framework to facilitate cross-company collaboration between Lockheed Martin and Raytheon, enabling efficient identification of discrepancies in simulation results. This streamlines cross-company debugging processes and reduces bug identification and resolution time by over 80%.
- Implemented Java-based functionality enabling Navy ship operators to quickly initiate radar searches by selecting pre-defined default search algorithms, eliminating the need to manually configure search areas and patterns. This streamlines operator workflow, reduces search setup time, and facilitates faster response to potential threats.
- Improved the handling of mission-critical alerts for Navy ship operators by implementing new C++ and Java functionality. This includes reducing alert frequency to minimize clutter and implementing an alert prioritization system that de-queues lower-priority alerts within specific groupings to ensure message clarity and prevent contradictions.
- Expanded the operational capability of the Aegis weapon system control module by over 10% through the proactive identification and resolution of 20+ software defects, enabling the system to handle a broader range of scenarios.

Software Engineer - Cornell Mars Rover, Cornell University | Sept. 2020 - June 2023

- Designed and implemented an Inverse Kinematics control scheme, enabling direct control of the end-effector's position and orientation. This resulted in a >90% reduction in completion time for complex manipulation tasks, such as retrieving geological samples, and a 300% increase in the number of tasks achievable during competitions.
- Upgraded the C++ control package of a 7-DOF manipulator arm from ROS 1 to ROS 2, reimplementing all core functionality and integrating the MoveIt 2 motion planning library to leverage the updated framework.
- Implemented a Forward Kinematics control scheme, enabling control over joint angles for accurate arm positioning.

Physics Laboratory Technician Intern - Honeywell | June 2021 - Aug. 2021

- Automated the testing process for Honeywell's ion trap chips, a critical component in their quantum computers, using a Python-based test suite to verify capacitance, resistance, and voltage specifications. Reduced ion trap chip testing time by >95% through the development of a Python-based automated testing system.

Projects

- **Locomotor-Terrain Interaction Simulation**: Programmed multibody dynamics simulations using Project Chrono in C++ to research animal locomotion in complex terrain with the Terradynamics Lab at Johns Hopkins University.
- **Aphelion Defense**: Led a team of 10 to develop a mobile video game developed in C++, featuring networked multiplayer. Proactively fostered a productive and focused team environment and facilitated communication between different sub-teams. Implemented unit pathfinding algorithms as well as modular graphics and UI systems.
- **Flappy Bird AI**: Developed a Q-learning reinforcement learning model to train on Flappy Bird using Python and PyGame. After training, the AI achieved a score of over 10,000, an impossible score to achieve for humans.

Skills and Miscellaneous

Skills: Research, Robotics (ROS 2), Software Development, Computational Modelling, Circuit Design and Analysis, Machine Learning (Pytorch), Programming Languages (Python, C++, Java), Databases (SQL), Version Control (Git), Linux, Unix

Non-Career Interests: Competitive Badminton, Amateur Weightlifting, Strategy Games (Chess, Civilization V), Game Design