Daniel Shamsoddini

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Education

Northwestern University Cumulative GPA: 3.80/4.00

B.A./M.S. in Computer Science *Sept. 2021 – June 2025*

Relevant Coursework: Introduction to Machine Learning, Data Structures and Algorithms, Computer Systems, Linear Algebra, C++ Programming, Python Programming, Programming Languages, Artificial Life, Statistics

Experience

Xenobot Lab June 2023 – Present

Northwestern University *Evanston, IL*

- Engaging in research in Prof. Sam Kriegman's lab in regards to Evolutionary Computation, Artificial Life, and Evolutionary Robotics.
- Gained experience with Reinforcement Learning (OpenAI GYM), Physics Simulation (MuJoCo), Robotics, and research processes and procedures in a Computer Science research environment.
- Currently working on a research paper with the goal of submitting to a Fall 2024 conference in Evolutionary Computation and Robotics.

L'SPACE Mission Concept Academy Jan. 2022 – July 2022

NASA *Remote*

- Worked with a cross-functional team of engineering students to develop a theoretical mission concept, managing communication and collaboration.
- Assess and troubleshoot computer problems brought by students, faculty and staff

Undergraduate Projects

Parallel Hill Climber Simulator | *Python, numpy, Pybullet, GitHub* January 2023 – April 2023

- Implemented a parallel hill climber simulator to study the evolution of robot locomotion in artificial life.
- Conducted experiments with different neural network configurations to test the impact of synaptic evolution on robot performance.
- Utilized Pybullet for physics simulation and numpy for array manipulations and mathematical operations.
- Analyzed data from over 500 generations across multiple random seeds, generating visualizations and confidence intervals for hypothesis testing.
- Collaborated with coursemates and professors to share insights and discuss potential improvements to the simulator.
- Currently working on a research paper for submission based on a future research direction outlined in the project.

Technical Skills

Languages: Java, Python, C/C++, Racket, LISP, HTML/CSS, SQL
Developer Tools: Git, VS Code, Visual Studio, PyCharm, IntelliJ, Eclipse
Libraries: pandas, NumPy, PyBullet