

Sina Hazeghi

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EDUCATION

Rutgers University - New Brunswick

Sep 2021 – December 2024

- Bachelor of Science in Computer Science and Mathematics
- GPA: 3.97
- Coursework: AI, Computational Robotics, Algorithms, Randomized Algorithms, Stochastic Processes, Cryptography, Data Structures, Computer Architecture, Systems Programming, Software Methodology, Theory of Probability, Linear Algebra

WORK EXPERIENCE

Rutgers University

Aug 2023 – Present

Lecturer cs.rutgers.edu

New Brunswick, NJ

- Developed secure Autograders with Python and Docker to assess 4 coding projects with 200+ student submissions each, while maintaining data integrity of instructor codebase
- Mentored classes of 30+ students, answering conceptual questions about networking and routing protocols

General Autonomy

Jul 2023 – October 2023

Software Engineer Intern genauto.ai

Piscataway, NJ

- Engineered Python backend that employs LLMs to automate over 70% of safely validation process for autonomous systems
- Implemented traceable Session graphs that use JSON serialization for 34% less memory usage and 3x faster parsing speeds compared to prior XML data storage framework
- Established webAPIs on Flask HTTP server, enabling communication between backend and Node.js frontend hosted on AWS

Navierre

Feb 2023 – Aug 2023

Data Science Intern navierre.com

Montvale, NJ

- Manually tested Java android healthcare app and fixed 20 security vulnerabilities leading to 80% reduction in crashes
- Researched and analyzed datasets to generate a machine learning model that grades patient health risk on a scale of 1 to 5

PROJECTS

Vectorgrad *Numpy-Powered Autograd Engine*

- Produced Autograd Python package using Numpy for tensor operations and matrix calculus, while employing underlying graph structure to keep track of gradients for backpropagation
- Trained neural networks for multi-classification tasks, obtaining 92% accuracy in MNIST digit recognition
- Improved performance by over 1000x with Numpy vectorized functions and Jacobian gradients, replacing scalar operations

KineMapper *Precision Localization Framework*

- Simulated a non-linear, kinematic differential drive robot with landmark sensors using Python, Numpy, and Matplotlib
- Derived actuation, and sensor models to approximate trajectories to within 0.1m^2 and 0.2 radians of ground truth poses
- Implemented Monte-Carlo Bayesian filtering for sub-0.4s localization using only faulty sensor and odometry readings

RoboPlanner *Autonomous Robotics Simulator*

- Developed 3-joint robotic arm and kinematic car models, simulated in environments with obstacles in Python
- Improved path planning efficiency by 40% in complex environments using PRM* (probabilistic roadmap) and A* algorithms
- Integrated kinodynamic search tree to find feasible trajectories for autonomous car to reach goal region with 89% accuracy

DevPort *3D Showcase Website*

- Crafted interactive website with 3D graphics and animations using Javascript, React, and Threejs.
- Automated build and deployment workflows through Github actions for effortless assimilation of 100+ commits
- Built responsive design with TailwindCSS for optimized viewing across platforms. See for yourself at: sina-haz.github.io

CShell *Efficient Unix Terminal*

- Pioneered Unix-based terminal in C with 73% faster execution speeds than Bash.
- Handled complex commands including file redirection, multiprocessing, and expression matching

SKILLS

- Languages: Java, Python, Mojo, C/C++, JavaScript, HTML, CSS, Typescript, X86 Assembly, SQL, R
- Technologies: Unix, Git, Flask, Docker, AWS, TensorFlow, PyTorch, React, Vite, Threejs, Tailwind, Jupyter, CUDA, CuPy