Weaver Goldman

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Education

Worcester Polytechnic Institute May 2027
Bachelor's & Master's of Science in Computer Science

Relevant Coursework

Courses: Writing About Science And Technology, Accelerated Object-Oriented Design Concepts, Probability For Applications, Multivariable Calculus

Experience

Research Assistant | *Cheng Lab, Penn State College of Medicine* June 2021 – August 2021
- Developed key-point scanning tool for micro-CT zebrafish scans utilizing GPU kernels for improved performance (full 3D searches taking under 5 seconds)
- Designed 9 functional tests through a collaboration with a cybersecurity professional
- Presented the application at a lab meeting along with novel segmentation techniques, leading to an 80% reduction in workload

Freelance Web Developer March 2021 – June 2021
- Crafted data visualization widgets and teaching tools for clients, utilizing technologies such as p5.js and Mathjax
- Engaged in project planning and negotiation with 15 clients to align with their specific requirements
- Developed robust codebases while adapting to varying project scopes

Projects

FRC Robot Code | *Java, Gradle, Git* January 2023 – July 2023
- Led and supervised development of competition robot code (4-person team, 6-week time limit)
- Implemented multi-threaded logging and telemetry, autonomous navigation, and localization with apriltags
- Collaborated on three-joint arm control algorithm using system dynamics and physical characteristics
- Enabled the robot to rank among the top 1% globally for overall performance (through these features)

MathWorks Math Modeling Challenge (Hackathon) | *Python, Matplotlib, NumPy* March 2023
- Collected data, built custom mathematical models (regressions), and analyzed methodologies
- Created graphs and comprehensive write-up of findings (with 3-person team, 14-hour time limit)

Paris Housing Analysis | *D3.js, React, TypeScript, Vite* June 2023
- Analyzed a Paris housing dataset sourced from Kaggle
- Created a data-driven website showcasing key insights, a correlation matrix, and an interactive decision tree in JavaScript, reaching 100% accuracy on the dataset

Algernon.js | *TypeScript, Vite, Vitest, Canvas API* July 2023
- Created a general-purpose web-based maze generation and solving library (reaching times under 1 ms for both)
- Incorporated popular algorithms such as backtracking, Kruskal's, A*, D* Lite, among others

TinyNEAT | *TypeScript, Vite, TypeDoc, GitHub Actions* July 2023 – August 2023
- Designed and built a lightweight, efficient, and extensible NEAT (NeuroEvolution of Augmenting Topologies) implementation for the web
- Integrated the library with simulations, providing real-time (greater than 60 fps) neural network and evolution processing

Skills

Languages: JavaScript/TypeScript, Java, Python, C++, LaTeX, Racket (and Lisp derivatives), MATLAB
Frameworks/Libraries: Node.js, Electron, Tensorflow, React, p5.js, ROS2, D3.js, Flutter
Tools: Git/GitHub, Docker, Linux