

# Leo Strangman

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## Education:

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**Worcester Polytechnic Institute, Class of 2026** 2022-2026

- Majoring in Computer Science, Minor in Data Science, GPA 3.85
- Courses include Software Engineering, Machine Learning, Artificial Intelligence, Operating Systems, Machine Organization, Human-Computer Interaction, Accelerated Object Oriented Design Concepts, and Algorithms

## Skills:

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**Languages:** C, C++, Java, Python, JavaScript, TypeScript, SQL, HTML/CSS, Astro, Assembly (Linux), Bash, R  
**Frameworks and Libraries:** React, Tailwind, Flask, Bootstrap, Pandas, NumPy, Matplotlib, TensorFlow, PyTorch  
**Environments/Tools:** Ubuntu, Git, GitHub, Anaconda, VSCode, Docker, Figma, Blender, JetBrains, SQLite  
**Workflows and Practices:** Agile, Scrum, Waterfall, CI/CD, GitHub Actions

## Work Experience:

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**CS/DS Intern | Massachusetts General Hospital** 2022-2025

- Front and back-end website development for the Neural Systems Group and the Center for Space Medicine Research using Astro, Tailwind CSS, Postgres, Vercel, and WordPress
- Automated data analysis collected with biomedical research equipment using Python to increase analysis efficiency by over 80%
- Supported design of a novel biomedical monitoring and brain imaging system to be used for neurophysiology research aboard the International Space Station
- Aided in redesigning and fabricating housing and sensor components using CAD models and soldering

## Projects:

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**leostrangman.com | Astro, Tailwind, TypeScript, Javascript, Vercel** 2024-Present

- Designed and developed a visually engaging personal portfolio website to showcase projects and technical skills

**ResearchApp | Python, Flask, HTML, JavaScript, SQL Alchemy** 2024

- Created an application used to post and apply to research positions within a university, integrating RESTful APIs to manage user data, research listings, and applications
- Utilized the Agile software development methodology to work effectively in a group setting
- Managed class relationships and user information securely in a Python-based SQL Alchemy database connected via Jinja2 to a web interface designed with HTML, CSS, and JavaScript
- Established a local server with Python and Flask for those on the university network to access the site

**Vehicle Heads-Up Display Design | Figma, HTML, Javascript, Blender** 2024

- Designed a heads-up display for use in a variety of vehicles, intended to limit distraction while providing easy access to necessary information and effective yet simple customization of the user experience
- Based on HCI heuristics, qualitative user research with semi-structured interviews, A/B testing, and more, the final HUD was shown to be the most effective and satisfactory design out of provided options

**Threads, Memory Management, and Scheduling | Ubuntu, VirtualBox, C** 2024

- Engineered a multi-threaded simulation of a virtual sports field in C, implementing decentralized thread coordination to manage concurrent team and player interactions without a centralized scheduler
- Designed and implemented a custom paging system with memory-mapped addressing, supporting map, store, and load operations for simulated virtual memory management

**Exploiting Programs in C and Assembly | Assembly (Linux x86), C, GDB** 2023

- Analyzed decompiled C code to reverse engineer and exploit vulnerabilities by crafting inputs and performing control flow manipulation
- Executed stack-based buffer overflow attacks and implemented ROP chains to bypass security mechanisms

**Developing Algorithms for Programs in Java | Java, Eclipse, IntelliJ** 2023

- Simulated dynamic memory allocation in Java by implementing custom malloc and free logic using linked lists
- Developed and optimized BST algorithms to support node operations, such as removal of nodes based on value parity
- Implemented traversal algorithms on weighted adjacency matrices to evaluate connectivity and shortest paths