

Sebastian J. Hamel

He/Him

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Open Source Projects

🔗 NBody-WASM-Sim

GPU-rendered astrophysics simulation in the web browser

[🔗 Demo](#)
[🔗 Repository](#)

- Performant real-time physics in Rust using linear algebra libs and WebGPU- 3.5x faster than Javascript
- Builds and deploys the demo web page automatically using GitHub CI/CD Actions
- Serves as an open-source template to create GPU-accelerated, interactive web apps
- Endorsed by 70+ Rust community members (Github stars)

🔗 Velato

An integration to parse & render animated/reactive UI with Vello

[🔗 Contribution](#)
[🔗 Repository](#)

- A collaboration with engineers from Blue Origin and Google
- Renders the Google Fonts team's Lottie animations
- Provides coverage of the large Lottie spec (an industry standard for interactive animations)

🔗 KubOS-NASA CubeSat Simulator Integration

Simulation support for flight software written in Rust

[🔗 Contribution](#)
[🔗 Repository](#)

- Enables Rust-based flight software (KubOS) to run on NASA's software-simulated CubeSat hardware
- Contains Rust bindings for NASA CubeSat emulation HALs

Career

Software Engineer Contractor

Blue Origin - Plaster Group

May 2024 – Present
Blue Origin's OLS Facility, FL

- Software engineering full stack applications for the Enterprise Technology Business Unit
- Gathered user feedback, then designed and implemented new web app features and deployed to production
- Led and delivered telemetry and graphical tools for the NG-1 mission broadcast

Software Engineer

NASA - COMET, Command & Control

Feb 2022 – May 2024
Kennedy Space Center, FL

- Software engineering of simulation software for NASA's Exploration Ground Systems (EGS) using agile software practices
- Primary contributor to NASA Class C verified software
- Developed CI/CD tools on GitLab to accelerate the development process
- Lead team effort on design of Rockwell PLC programming language features in NASA's EGS PLC emulator
- Collaborated with teammates on technical documents using Windchill software
- Completed a 10 week, NASA-sponsored course on leadership and management

Software Engineer

AFIT, Center for Space Research & Assurance

Jun 2020 – Feb 2022
Wright-Patterson AFB, OH

- Lead the effort of onboarding summer interns, creating learning materials on the C language and flight software
- Developed CubeSat flight software in C with NASA's cFS framework and also in Rust with KubOS
- Primary developer of GitHub contributions to an open-source spacecraft flight software framework written in Rust (KubOS)

- Lead the team effort on the design of system mode management software on a CubeSat spacecraft
- Developed CubeSat ground control software which interfaces with databases and TCP/UDP mission communications in Python
- Developed software in Python to automate processes and accelerate CubeSat mission development

Software Engineering Co-op

Jan 2019 – Aug 2019

NASA IV&V

Fairmont, WV

- Contributed to NASA's open-source flight software simulator (NOS3) with upgraded packages and documentation
- Developed Rust bindings to C++ based hardware abstractions layers for NOS3 simulator
- Modeled CubeSat OEM hardware components into C++ emulators running in NOS3

Skills

- ★ **Primary Languages:** Rust, C/C++, Python
- ☆ **Other Languages:** TypeScript, React, GraphQL, Java
- 🐧 **Platforms:** 🐧 Ubuntu, 🐧 RedHat 8, 🖥️ Windows
- 🔄 **CI/CD:** GitLab CI configurations (YAML)
- git **Content Management:** Git, GitHub, GitLab
- 🐳 **Software:** Docker, Bash, Confluence/Jira, VersionOne, Visual Studio Code

Education

Bachelor of Science, Computer Science & Engineering

Class of 2021

University of Toledo, ABET Accredited

Toledo, OH, USA

- Summa Cum Laude
- 3.97 GPA