

Rose Rodrigues

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Education

Bachelor of Science, Computer Science; Mathematics

(December 2026)

College of Science and Engineering, University of Minnesota: Twin Cities - GPA: 3.14

- Minor in Astrophysics
- Coursework: Applied Machine Learning, Modern Cryptography, Analysis of Numerical Algorithms, Algorithms & Data Structures, Maths of Quantum Computing, Formal Languages and Automata Theory

Skills

- **Languages:** Rust, C++, C#, T-SQL, Java, C, Python, JavaScript
- **Services:** Azure DevOps, Git, SSMS, Node.JS, Jenkins, MongoDB, GitHub, AWS
- **Software:** Docker, Onshape, Unreal Engine, MonoGame, Blender, MATLAB
- **Development Environments:** Windows/Mac/Linux, STM, i.MX 8, Raspberry Pi, Arduino, Cloud
- **Embedded Toolchains:** Yocto Project, Torizon OS, STM32CubeIDE, Cross (Rust)
- **Foreign Language:** Portuguese (fluent), Italian (literate & conversational)

Work Experience

Engineering Co-op

(January 2026 - Present)

AtriCure Inc., Minnetonka, MN

- Develop and debug safety-critical embedded software for IEC 62304 class B medical devices deployed in operating rooms across STM32F7 and i.MX 8M Plus system-on-chip and modules written in Rust, C++, Python and JavaScript, leveraging CI/CD pipelines with Jenkins and Azure DevOps, completing more than 50 tasks organized by the development team.
- Built an internal tool that automatically syncs scripts across multiple targets based on updates to a centralized table, cutting down development times by 80-90%, coordinating its functionality with software engineers across the team to align it with the current workflow.
- Refactored systems across the device, ranging from restructuring the internal audio queue system to implementing external human interface device compatibility, custom display refresh rate configurations in addition to USB cybersecurity changes to the base operating system via Yocto Project and vendor-specific softwares.

Software Development Intern

(May 2025 - December 2025)

National Checking Company, St. Louis Park, MN

- Engineered novel features to the Always Food Safe food safety training platform using C#, ASP.NET, jQuery, and T-SQL across 16 pull requests, implementing features spanning CRON Jobs, REST APIs, LINQ queries, RDBMS embedded trees, and OIDC auth protocols.
- Contributed to the Agile refinement, development and testing process on the Learning Management System team, validating feature implementations with stakeholders and pairing with software engineers for reviews.

Tier II Planetarium Guide

(September 2023 - June 2025)

Bell Museum, St. Paul, MN

- Operated specialized real-time dome simulation software to deliver live astrophysical visualizations to audiences of up to 120 people, translating complex concepts into accessible narratives for general audiences of diverse scientific backgrounds, age ranges, and nationalities.
- Promoted to mentor and onboard new guides, providing structured feedback on current and new presentations to supervisors and supporting event planning, taking on a mentorship role in the team.

Project Experience

Embedded Monophonic Note Recognition System

(December 2025 - Present)

- Developing an embedded Linux distribution built with Yocto Project and Poky for a <25s boot time on a RPi 3B+, including a custom BitBake layer, HDMI + I2C driver integration, and automated Wi-Fi provisioning.
- Designing and implementing a Rust-based note recognition system embedded in a Raspberry Pi using a McLeod Pitch Method for accurate monophonic detection with a real-time user interface and audio processing
- Manufactured the physical device via parametric design for its enclosure using CAD software and 3D printing.
- Applying explicit requirements tracking for software and hardware, employing end-to-end embedded systems engineering from specification through hardware deployment, in addition to documenting complex steps of the operating system's image generation via Jenkins or manual commands on a traceable document.

Pitch-Based Real-Time Controller System

(August 2024)

- Built a dual-program communication system transmitting console inputs as stereo audio frequencies where a C++ program converts button and touchscreen inputs to distinct tones and a Rust decoder and interpreter uses FFT to reconstruct and replicate them on its host machine with <50ms latency.

Development of Immersive Metaverses applied to Astrobiology Teaching

(January 2020 - May 2022)

Scientific Pre-Initiation Program, Colegio Dante Alighieri, Sao Paulo, SP, Brazil

- Participated in 11 national and international fairs and won 20+ national and international awards including 1st place at 3 top Brazilian science fairs; 1st place at MIICA in Malaysia; 3rd place in Systems Software at Regeneron ISEF 2022; and an INCOSE honorable mention; competing against as many as ~1,800 students from 63+ countries.