Rose Rodrigues

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EDUCATION

Bachelor of Science, Computer Science; Mathematics (May 2026)

College of Science and Engineering, University of Minnesota: Twin Cities

- 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, Python, JavaScript
- **Services:** Azure DevOps, SSMS, Node.JS, MongoDB, GitHub, AWS
- **Software:** Docker, Unreal Engine, MonoGame, Blender, MATLAB
- **Development Environments:** Windows/Mac, STM, i.MX 8, Cloud, Raspberry Pi, Arduino, Particle Photon
- **Foreign Language:** Portuguese (fluent), Italian (literate & conversational)

WORK EXPERIENCE

Engineering Co-op (January 2026 - Present)

AtriCure Inc., Minnetonka, MN

- Develop and debug software embedded in **STM32F7s** and **i.MX 8M Pluses** written in **Rust**, **C++**, Python and JavaScript for company-produced medical devices used in the operating room, testing proper behaviour and ensuring high-level quality of products alongside the Engineering team.
- Outlined and programmed targeted reliability and verification tests for both software and hardware components of the devices leveraging multiple concurrent systems with distinct architectures.

Software Development Intern (May 2025 - December 2025)

National Checking Company, St. Louis Park, MN

- Contributed to the Agile refinement, development and testing process on the Learning Management System team, validating feature implementations with stakeholder peers
- Engineered novel features using **C#, ASP.NET, jQuery, and T-SQL**, collaborating with senior developers to enhance the company's codebase with a total of **16 pull requests**.
- Accomplished projects involving **CRON** Jobs, **REST**, **LINQ**, **RDBMS** embedded trees, and **OIDC** protocols.

Tier II Planetarium Guide (September 2023 - June 2025)

Bell Museum, St. Paul, MN

- Operate a specialized planetarium dome software to engage over a thousand people a month from formative to advanced ages, controlling 360º live astrophysical graphics and simulations
- Deliver engaging scripted and impromptu expository presentations on space and astrophysics using science communication and effective storytelling to diverse audiences of up to 120 people, ranging from school groups to corporate events in both indoor and outdoor activities
- Promoted to help organize and plan projects and events, mentor newer planetarium guides to familiarize them with policies and procedures, and give professional feedback on shows and exhibits.

STEM Mentor (June 2024 - May 2025)

CSE Student Services, Minneapolis, MN

- Mentor STEM-focused students in monthly meetings, guiding their exploration of STEM concepts, careers, and hands-on activities.
- Inspire and bolster over 100 middle and high school students in exploring various STEM subjects through shared efforts, communications, planning, and teamwork with faculty and external organizations
- Present multiple hour-long sessions about stellar observing, scientific and cultural constellations, and deep-space objects, and fashioned an activity to encourage creativity and introspection

PROJECT EXPERIENCE

Retinal Image Scan Classifiers (March 2025 - May 2025)

- Analyzed accuracy and performance in retinal disease diagnosis through machine learning algorithms
- Programmed a nearest-neighbour model, a custom deep-convolutional neural network, and implemented a pre-existing research-based model. Conducted comparative data analyses of all three methods

Pitch-Based Real-Time Controller System (August 2024)

- Developed a dual-program software system enabling real-time input transmission via sound waves.
- Designed a C++-based application to convert console inputs into distinct stereo frequencies and a Rust-based program to decode these signals using FFT, accurately reconstructing inputs on the target machine with less than 50ms of latency.

Interactive Robotic Dynamic Alexa-Integrated Luminary (January 2023 - May 2023)

- Developed and deployed Alexa-controlled interactions using a custom Skill, integrating AWS and IoT connectivity via Node.js, with sound-responsive jaw movement programmed in C++.