John Carter

210 995 8472 | johnnacion@protonmail.com | johnnacion.dev | GitHub | LinkedIn

EDUCATION

San Francisco State University: San Francisco, CA (Expected: May 2025)
Bachelor of Science, Computer Science
Diablo Valley College: Pleasant Hill, CA (2020-2022)
Associate of Science, Computer Science

TECHNICAL SKILLS

Languages: C#, Rust, C, C++, Java, JavaScript, TypeScript, SQL, Python, GDScript
Tools: Vim/Neovim, Git, GitHub, VSCode, Visual Studio, Jetbrains, Microsoft Office, Google Suite
Development Frameworks/Software: Unity3D, Godot, bevy, .NET, Avalonia, egui, NodeJS, Axum, mySQL, PostgreSQL
Development/Design/Architectural Patterns: Object-Oriented Programming, Data-Oriented Design, Entity Component Systems, Functional Programming, Single Page Application, Object Relational Mapping
Operating Systems: Windows, macOS, Linux/GNU, NixOS, Arch, Debian

PROJECTS

Game Save Editor - GUI utility program to edit game save data

- Developed data manipulation system using C# and .NET to transform complex XML game saves.
- Built maintainable UI with Avalonia framework implementing MVVM architectural pattern.
- Optimized performance with multithreaded operations for concurrent XML processing and file I/O.
- Served a large community with over 40,000 downloads across GitHub and game forums.

Raspberry Pi GPIO Web Controller - Self-Contained Web Application to control GPIO Pins

- Engineered an Direct Memory Address C Library to interface with GPIO pins.
- Rewrote a custom GPIO DRA C library into Rust using Rust's standard memory safety practices as well as unsafe Rust for direct memory manipulation.
- Integrated Rust Axum to create a backend web server for HTTP endpoints as well as WebSockets for fast concurrent connections.

Raspberry Pi Powered OmniDirectional Robot - Line following Robot with Multi Modal Obstacle Tracking/Avoidance

- Programmed a multi-threaded C program to control an omni-directional robot to serve a line following, wandering, obstacle avoidance and obstacle tracking bot.
- Using IPC, specifically shared memory to create an accompanying Rust axum web server to observe in real time using web sockets - the bot's current actions as well as using ALSA to pipe audio through attached mini-speakers.
- Designed a robust, modular, highly readable GPIO library in C, to serve as a foundation for the other control surfaces and sensors to utilize and read from.

3D Multiplayer FPS Dungeon Crawler (In-Progress) - Unity game with integrated networking and procedural generation

- Designed and implemented a scalable multiplayer system using Unity's Network Game Objects.
- Engineered an advanced procedural generation system that creates unique, playable dungeons with varying room configurations and dynamic item generation using the same procedural generator.
- Implemented Steam API for seamless matchmaking and lobby management.
- Integrated an immersive 3D audio system with spatial awareness, room acoustics, and propagation effects.

Game Mod Loader (In-Progress) - GUI utility program made with Rust to load game modifications

- Architected XML parsing system to extract, transform, and merge game data with minimal overhead.
- Built responsive UI with Rust's egui and e-frame frameworks for cross-platform compatibility.
- Designed plugin architecture supporting community-created mods with automated conflict resolution.

WORK EXPERIENCE

United States Air Force - San Antonio, Texas (2015 - 2018)
Security Forces, Installation Entry Controller, Patrolman

- Entry Controller for the second largest non-nuclear joint installation within the Department of Defense.
- Maintained security of the local SCIF and performed route clearance for visiting high-ranking officials.
- Responded to and investigated over 100+ unannounced alarm activations, incidents, criminal offenses, and traffic mishaps/accidents.