Joshua Lollis

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New-grad CS software engineer (Jan 2026) with C++ and OOD experience across coursework and projects. Hands-on with Git/CMake workflows and development in Linux and Windows environments.

Education

B.S. Computer Science (GPA: 3.63)
California State University - Fullerton, January 2026
Video Game Dev Club - Collaborator (Dev Team, Unity/C#)

Skills

Stack | C++, C#, Python, Unity, Qt, .NET
Env | Linux, Windows, Android, Raspberry Pi
Tools | Git, CMake, GitHub (Issues, PRs), GitHub Projects
Methods | Agile/Scrum (standups), Kanban, roadmapping

Projects

snAIke [AI Strategy Sandbox] – C++, SFML, CMake, Strategy Pattern
Modular sandbox for toggling AI strategies at runtime, with visualizations (decision paths + heatmaps) for analysis and tuning.
- Built a C++ Snake sandbox with a pluggable AI interface to switch and compare multiple strategies in real time.
- Implemented a state machine (menu/playing/paused/game over) to isolate gameplay flow from AI logic.
- Added debug overlays (move-choice arrows and per-cell heatmaps) to expose each strategy's decision process.
- Used STL containers for grid state, snake body tracking, and AI search sets to keep updates efficient in real time.

RAT21F Compiler [CPSC323 Compiler Project] – C++, Finite State Automata
Handwritten lexer, recursive-descent parser, and semantic checks for a course-defined language.
- Built a modular RAT21F compiler in C++ with lexical analysis, parsing, and semantic validation.
- Implemented an FSM-based lexer for identifiers, integers/reals, keywords, and operators, with CLI/file I/O handling.
- Architected a recursive-descent parser supporting functions, declarations, expressions, and control flow.
- Validated each phase with multiple test programs to ensure correctness and spec compliance.

Snake [C++ Desktop App] – C++, SFML, CMake, State/Command/Observer Patterns
Complete application with menu system, gameplay states, pause functionality, high score persistence, and new mechanics.
- Delivered a polished Snake clone featuring menu navigation, pause functionality, and top-3 high scores persistence.
- Implemented State and Command design patterns to manage game state transitions and decouple input routing.
- Architected gameplay into discrete systems (movement, collision, scoring) to improve maintainability and testability.
- Serialized high scores using Cereal binary archives to persist player data across sessions.

XB2MIDI [Hardware Interface Utility] – .NET, C#, WPF, MVVM, XInput, NAudio
Windows desktop app that maps Xbox controller inputs to MIDI messages, macros, and chord workflows for DAWs/VSTs.
- Delivered a multi-mode Windows desktop app that translates Xbox controller inputs to MIDI for DAW integration.
- Created a polymorphic MappingManager class system with JSON data persistence, allowing extensible mapping.
- Implemented event-driven controller polling with input debouncing, thread-safe UI, and low latency.
- Managed MIDI device lifecycle with hot-swap support, safe enumeration, auto-reconnect, and rate-limiting.

ASCII Draw [Linux Open Source Contribution] – Python, XML, GDK, Meson Build System
An open-source contribution project that integrates PNG to ASCII import/conversion with the original app's functionality.
- Added PNG import to ASCII Draw, converting PNG files into editable ASCII canvases with save/export support.
- Optimized for large inputs by allowing downsampling, avoiding slow processing and impractically large ASCII output.
- Led a 3-person Agile team managing backlogs and sprints in GitHub Projects, coordinating PR reviews and merges.

Antillery [Senior Capstone Game] – Unity, C#, Addressables, ScriptableObjects, UXML
2D turn-based artillery game with full menu-to-match flow, Addressables scenes, and ScriptableObject state machines.
- Architected layered framework using ScriptableObject-based states and Addressables for async scene loading.
- Delivered playable alpha with match loop: team alternation, turn timers, damage resolution, and win/loss handling.
- Implemented turn-scoped input gating via Unity Input System with decorator-pattern per-unit control activation.
- Applied composition-over-inheritance for unit locomotion via factory-built 5-state machine with 13 transitions.

Card Collection [API-Driven Desktop App] – Python (PySide6), Qt/QML, REST API, JavaScript
Desktop app for searching, discovering, and collecting Pokémon TCG cards via API.
- Led an Agile coursework team, managing backlog, sprints, and roadmap, and presenting bi-weekly.
- Implemented async API search over 50,000+ cards using threading for a responsive UI.
- Built a modular UI with 20+ QML components wired to Python via signals/slots.
- Created UML and tutorials, and mentored teammates on Git and REST API workflow.

Relevant Coursework

Data Structures • Algorithm Engineering • Object Oriented Programming (C++) • Operating Systems • Software Engineering • Computer Organization and Assembly • Compilers • Computer Communications • Computer Security • File Structures & Databases • Senior Capstone • Discrete Math • Linear Algebra & Graph Theory

Additional Coursework

Artificial Intelligence • Mobile App Dev for Android • Principles of Computer Graphics • Visual C# Programming • Intro to Game Design

Employment

Portrait Photographer - Cantrell Photography

Orange County | Feb 2025 - Aug 2025
- Captured high-volume student/staff portraits on tight schedules while maintaining consistent quality.
- Set up, calibrated, and maintained equipment across multiple school sites.
- Coordinated with staff and team members to keep workflow efficient and on time.

Graphic Artist - Freelance

Remote | Jan 2024 - Jan 2025
- Designed custom graphics for a small lifestyle business using Photoshop and Illustrator.
- Adapted and enhanced customer-provided graphics for new applications, ensuring alignment with project goals.
- Improved image quality by upscaling graphics to optimal DPI for web-friendly publishing.

STEM Robotics Educator - Brain Builders STEM Ed

Tustin/Santa Ana, CA | Aug 2022 - Jan 2023
- Taught engineering and robotics concepts to grades 3–6 in after-school programs.
- Developed and delivered hands-on lessons that emphasized creativity, teamwork, and problem-solving.
- Managed classrooms (often 20–30 students) and communicated progress with staff/parents as needed.

Content Integration Assistant - Thales

Irvine, CA | Oct 2021 - Oct 2022
- Performed QA/QC validation of audio/video content against contract specifications and metadata requirements.
- Logged defects and maintained issue reports with clear reproduction details and status tracking.
- Partnered with technical teams to verify fixes and ensure deliverables met quality standards.

Merchandise Sales Assistant - ADI Global

Orange, CA | Nov 2013 - Oct 2019
- Communicated with customers to determine needs, address issues, and resolve concerns.
- Managed and remediated branch stock inaccuracies for thousands of part numbers.
- Balanced conflicting tasks and managed time effectively between processing duties and customer assistance.

Electronics/Mobile Sales & Photo Lab Technician - Walmart

Onalaska, WI | Jul 2007 - Sep 2013
- Diagnosed mobile setup and connectivity issues, supporting activations, upgrades, and account configuration.
- Operated a high-throughput photo lab, producing print products and performing quality checks before release.
- Managed orders and inventory, tracking online and special orders through fulfillment and cycle counts.