

# Ayan Chavand

SOFTWARE ENGINEER

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## Summary

Systems-oriented Software Engineer with experience designing performance-critical applications, core user features, and client-server tools in C++, Rust, and C#. Former software intern and open-source contributor to the Godot Engine, with a strong foundation in low-level debugging, clean architecture, and building maintainable systems under real-world constraints.

## Skills

**Programming Languages** C++, Rust, C#, Kotlin, JavaScript

**Systems & Software Engineering** Client-Server Architecture, Asynchronous I/O, State Machines, API Design

**Web & Backend Technologies** React, REST APIs, Firebase, MongoDB

**Development & Tooling** Git/GitHub, Linux, Visual Studio, Docker, CLI & TUI Applications

## Selected Projects

### vib [GitHub]

TERMINAL-BASED REMOTE FILE BROWSER WITH CUSTOM CLIENT-SERVER ARCHITECTURE

2025

- Designed and implemented a cross-platform remote file browsing system consisting of a lightweight Go-based file server and a Rust-based TUI client.
- Defined a minimal, purpose-built network API for structured directory traversal, keeping the client stateless and offloading filesystem logic to the server.
- Architected the Rust TUI around non-blocking network operations to maintain UI responsiveness under network latency and partial failures.
- Implemented keyboard-driven navigation, file preview, and file download workflows optimized for terminal-first power users.
- Handled authentication errors, connection failures, and refresh logic gracefully without freezing or crashing the UI.
- Emphasized clear separation of concerns between UI, networking, and protocol layers to ensure maintainability and extensibility.

### Mini GL Renderer [GitHub]

LIGHTWEIGHT OPENGL RENDERING FRAMEWORK FOR SYSTEMS-LEVEL GRAPHICS EXPERIMENTATION

2025

- Designed and implemented a modular rendering framework in modern C++14, providing clean abstractions over OpenGL core concepts such as shaders, buffers, and draw pipelines.
- Built explicit RAII-based abstractions for GPU resources (VAO, VBO, EBO), enforcing correct lifetime management and reducing misuse of low-level OpenGL state.
- Implemented a configurable rendering pipeline supporting multiple mesh types, transformations, and rendering modes, emphasizing extensibility and separation of concerns.
- Integrated real-time debugging and inspection tools using Dear ImGui to enable live manipulation of rendering state, camera parameters, and performance diagnostics.
- Developed shader compilation and uniform management systems to support runtime experimentation while maintaining predictable performance characteristics.
- Gained hands-on experience with GPU pipelines, memory management, and state-driven APIs through end-to-end ownership of a graphics subsystem.

## Work Experience

### IDZ Digital Private Limited

Mumbai, Maharashtra

SOFTWARE ENGINEERING INTERN (GAME SYSTEMS)

Jun. 2024 – Sept. 2024

- Developed 10+ mobile game prototypes from concept to MVP using Unity and Godot, emphasizing rapid iteration, stability, and performance under tight deadlines.
- Designed reusable, component-based systems and automated build workflows in C#, reducing prototype development time by ~40% across projects.
- Collaborated with designers and engineers to translate gameplay requirements into maintainable, testable systems through iterative feedback cycles.

### Tutedude

Remote

GAME PROGRAMMING INSTRUCTOR

Feb. 2025 – Sept. 2025

- Designed and implemented 12+ end-to-end software projects demonstrating gameplay systems, physics simulation, UI architecture, and performance optimization.
- Authored and delivered 60+ hours of structured technical content covering Unity, Unreal Engine, C#, and C++, with emphasis on debugging, system design, and clean code practices.
- Mentored learners by breaking down complex engine and programming concepts into modular, production-oriented workflows, improving practical application and comprehension.

# Open Source Contributions

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## Godot Engine

ENGINE AND DOCUMENTATION CONTRIBUTOR

2024 – 2025

- Debugged and resolved editor and tooling regressions, including UI behavior bugs and incorrect state handling across editor workflows.
- Authored and improved in-engine and online documentation to clarify API behavior and reduce developer confusion around physics query parameters and animation systems.
- Worked within a large, review-driven open-source project, collaborating through code reviews, issue discussions, and iterative refinements to land production-quality changes.

## Education

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### Institute of Advanced Research

BACHELOR OF TECHNOLOGY (COMPUTER SCIENCE)

Gandhinagar, Gujarat

2023 - Present

- Currently a third year student

## Certifications & Participation

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### PARTICIPATION

2024    **Finalist**, Code Kshetra Hackathon

JIMS, Delhi

### CERTIFICATIONS

2023    **Python for Software Engineering**, Chegg inc

2023    **Object Oriented Programming (OOP) in C++**, freeCodeCamp

2023    **C Programming Fundamentals**, UCSC (Coursera)

## Extracurricular Activity

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### Instilt Educate

ENGLISH TUTOR

- Volunteered as an educator for underprivileged children, teaching them English for better access to quality education.
- Proposed various marketing and network activities to raise awareness.