

Sergei Mendoza

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SUMMARY

Software engineer with five years of experience shipping performance sensitive C++ systems for real time 3D applications across desktop, console, and mobile class hardware. Builds scalable engine capabilities for **mesh processing**, geometry processing, **level of detail**, transcoding, asset streaming, runtime loading, spatial data, and client performance. Uses profiling evidence to diagnose CPU time, GPU time, memory use, loading latency, visual quality, and **frame time stability** across constrained devices. Owns ambiguous initiatives from discovery through design, implementation, validation, rollout, and production follow through. Partners with rendering, animation, content, tools, and **developer facing teams** so engine features support practical production workflows. Brings clear technical communication, maintainable code, thoughtful tradeoffs, and hands on leadership that can help teams deliver reliable high fidelity 3D experiences across diverse device tiers.

EXPERIENCE

Senior Software Engineer, 3D Engine

January 2025 - Present

Vertex Forge Studios

San Jose, California

Owns geometry streaming, **runtime loading**, and scalability systems for a multiplayer 3D product. Leads technical discovery, implementation, validation, rollout, and production follow through across client platforms. Partners with rendering, animation, tools, and content teams to keep low level engine capabilities practical for production workflows.

- Owned **C++** geometry streaming systems, carrying profiling findings through staged production rollout.
- Designed mesh **LOD** selection using view conditions, memory budgets, and device capability constraints.
- Profiled CPU, GPU, frame time, **memory**, and loading behavior with internal instrumentation.
- Built asynchronous asset **streaming** and cache policies that reduced stalls in dense scenes.
- Defined integration contracts with rendering, animation, tools, and content teams for production adoption.
- Maintained **code health** through reviews, tests, regression checks, design reviews, and monitoring.

Software Engineer II, Engine Systems

June 2023 - December 2024

Luma Ridge Interactive

Santa Clara, California

Developed C++ engine systems for real time 3D environments, with ownership across geometry processing, spatial organization, asset loading, and client performance. Drove medium scope features from design through rollout while coordinating interfaces with rendering and content tool engineers. Used representative device traces to guide reliable production decisions.

- Developed C++ runtime systems for **geometry processing**, spatial organization, asset loading, and client performance.
- Implemented mesh preprocessing and **transcoding** stages for platform specific runtime formats.
- Diagnosed frame time instability by correlating rendering workload, allocations, streaming activity, and scene complexity.
- Extended **spatial data** structures for visibility and streaming decisions across dense scene traces.
- Coordinated interface changes with **rendering** and content tool engineers during asset workflow adoption.
- Drove **engine** features from design through rollout, monitoring telemetry for device regressions.

Software Engineer, Real Time Systems

July 2021 - May 2023

Arcadia Simulation Labs

Fremont, California

Built C++ components for a real time 3D simulation platform supporting scene data, runtime resources, and latency sensitive update loops. Contributed geometry utilities, profiling instrumentation, resource loading controls, and optimization work within a large production codebase. Collaborated with rendering and tools engineers during technical design and review.

- Built C++ components for scene data, runtime resources, and latency sensitive update loops.
- Created geometry import utilities that validated mesh attributes before interactive sessions.
- Added profiling instrumentation around loading, allocation, and frame updates across test hardware.
- Optimized measured CPU hotspots while preserving readable code and stable complex scene behavior.
- Implemented configurable resource loading for hardware targets, balancing startup latency and memory.
- Contributed code reviews and design discussions with rendering and tools engineers.

PROJECTS

Mobile Geometry Scalability Pipeline 📅 2025

Created a focused scalability initiative for mobile class hardware, combining mesh processing, LOD selection, asynchronous streaming, runtime loading, and memory budgets. The work connected profiling evidence with practical device tier decisions and stable visual output.

Spatial Runtime Loading Framework 📅 2024

Built a spatial data workflow for visibility and streaming decisions across dense real time 3D scenes. Representative device traces guided loading behavior, frame time analysis, and platform specific resource choices.

LEADERSHIP & AWARDS

- Recognized by engineering leadership for dependable ownership of production engine scalability initiatives.
- Received peer recognition for clear technical tradeoff discussions during cross team rendering work.
- Led technical reviews that improved code health, testing discipline, and production follow through.

EDUCATION

Bachelor's Degree in Computer Science

2021

San Jose State University GPA: 3.8

San Jose, California

Coursework: Algorithms, Computer Graphics, Operating Systems, Software Engineering

CERTIFICATIONS

- Certified Scrum Developer 📅 2024
- Advanced C++ Programming Certificate 📅 2023

TECHNICAL SKILLS

- **C++ Development:** C++, STL, templates
- **Real Time Rendering:** 3D rendering, GPU optimization, frame time
- **Geometry Processing:** mesh processing, geometry validation, transcoding
- **Level of Detail:** LOD selection, view conditions, visual quality
- **Asset Streaming:** asynchronous streaming, cache policies, runtime loading
- **Performance Profiling:** CPU profiling, GPU profiling, internal instrumentation
- **Memory Optimization:** memory budgets, allocation analysis, cache management
- **Spatial Data:** spatial structures, visibility, scene organization
- **Asset Pipelines:** 3D asset pipelines, mesh preprocessing, asset validation
- **Platform Optimization:** mobile performance, console performance, device tiers
- **Animation Systems:** animation, skinning, avatar geometry
- **Engineering Quality:** code review, regression testing, design review

SKILLS

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|----------------------|-----------------------|-------------------|----------------------|
| • C++ | • Mesh Processing | • Asset Streaming | • CPU Profiling |
| • Real Time 3D | • Geometry Processing | • Runtime Loading | • GPU Profiling |
| • Game Engines | • Level of Detail | • 3D Rendering | • Mobile Performance |
| • Engine Scalability | • Transcoding | • Spatial Data | |

PROFESSIONAL AFFILIATIONS

- Participated in real time graphics engineering communities focused on practical engine performance work.
- Collaborated with rendering, content, tools, and developer facing engineering groups on shared production goals.

LANGUAGES

- English (Native)
- Russian (Proficient)

ADDITIONAL INFORMATION

Work Status : Authorized to work in United States. No sponsorship required.

REFERENCES

AVAILABLE ON REQUEST