

LUCAS WALL

SOFTWARE ENGINEER

C++ • Systems Programming • Graphics • Networking • Game Technology
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PROFESSIONAL SUMMARY

Software Engineer with experience developing real-time and performance-critical applications in C++, including engine architecture, graphics programming, networking, and multithreaded systems. Demonstrated leadership experience directing technical development and software architecture for multidisciplinary teams. Skilled at designing modular, maintainable software solutions and collaborating effectively throughout the development lifecycle.

TECHNICAL HIGHLIGHTS

- Designed and implemented custom C++ engine architectures utilizing modular GameObject and Scene frameworks.
- Developed real-time rendering pipelines using DirectX 11 and HLSL, including custom shaders for lighting, fog, and mirror rendering.
- Implemented multiplayer networking systems using client/server architecture, client-side prediction, dead reckoning, and deterministic replay tools.
- Designed multithreaded algorithms and optimized workload distribution to achieve measurable runtime performance improvements.
- Lead software architecture, sprint planning, and technical decision-making for an eight-person multidisciplinary game development team.

TECHNICAL SKILLS

Languages: C++, C#, Java, Python

Software Engineering: Data Structures, Object-Oriented Programming, Design Patterns, JSON, Multithreading, Performance Optimization

Systems Programming: Engine Architecture, Gameplay Systems, Collision Detection, Scene Management, Audio Systems

Graphics Programming: DirectX 11, HLSL, Rendering Pipelines

Networking: TCP/UDP, Client/Server, Client-side Prediction, Dead Reckoning

Tools: Unity, Unreal Engine, Git, Perforce, Visual Studio

SOFTWARE ENGINEERING PROJECTS

Monster League Baseball

- Architected and implemented core gameplay systems, including batting, baserunning, items, progression, and player statistics.
- Developed a modular gameplay framework using JSON for data-driven configuration, enabling extensible mechanics and rapid content iteration.
- Developed custom shaders for dynamic sprite shadows and runtime texture recoloring.
- Diagnosed and resolved critical production issues under milestone-driven development deadlines.

Slippers Engine (C++)

- Architected a modular GameObject and Scene framework to support reusable gameplay systems.

- Designed a subscription-based engine architecture allowing objects to register for rendering, collision detection, audio, and update systems.
- Developed runtime debugging tools and validated the engine by building a complete playable tank game.

DirectX 11 Graphics Engine

- Designed and implemented a real-time rendering pipeline using DirectX 11 and HLSL.
- Developed custom HLSL shaders implementing Phong lighting, fog effects, and mirror rendering.
- Integrated imported meshes and textures to validate the graphics pipeline with custom 3D assets.

Multiplayer Omega Race

- Designed and implemented a client/server networking architecture for an existing multiplayer game, maintaining synchronized game state under simulated latency and packet loss.
- Implemented client-side prediction and dead reckoning to reduce perceived latency while minimizing bandwidth usage.
- Developed a deterministic input recording and playback system to reproduce gameplay sessions for debugging and regression testing.

Multithreaded Maze Solver

- Designed and implemented a multithreaded Breadth-First Search (BFS) maze-solving algorithm.
- Optimized workload distribution across worker threads, achieving approximately 1.8x performance improvement over a single-threaded baseline.

PROFESSIONAL EXPERIENCE

Founder & Lead Software Engineer — Lunge Software LLC | Aug 2025–Present

- Founded Lunge Software LLC and lead development of Monster League Baseball.
- Lead software architecture and technical decision-making across gameplay, rendering, and engine systems.
- Manage sprint planning, engineering priorities, and milestone delivery for an eight-person multidisciplinary team.
- Establish development workflows, code review practices, and Perforce-based version control.

Programming Instructor — CodeAdvantage | Jan 2025–Present

- Teach programming, software design, and computational thinking using Minecraft Education Edition.
- Adapt technical concepts for students of varying skill levels through interactive and project-based instruction.
- Create an engaging and inclusive classroom environment that promotes creativity, problem-solving, and independent learning.

Programming Instructor — iD Tech | Feb 2023–May 2024

- Taught Python programming, Unity, Unreal Engine, and foundational software engineering concepts.
- Contributed to curriculum testing and development initiatives through two weeks of on-site collaboration at company headquarters.
- Demonstrated leadership and communication skills by coordinating team responsibilities and facilitating engaging educational experiences for students and families.

EDUCATION

DePaul University

Bachelor of Science, Game Programming

GPA: 3.84