



Micah Berninghausen

Technical Director | Performance Engineering
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LINKS

[linkedin.com/in/micahberninghausen](https://www.linkedin.com/in/micahberninghausen) | x.com/GameDevMicah | YouTube: @aggressivemastery
www.youtube.com/watch?v=Rt0RPP0hUqs "Speeding Up Destruction in Giantess Playground"
www.vice.com/en/article/epic-games-ceo-loves-this-giantess-game-now-you-can-wishlist-it/
80.lv/articles/procedural-interior-generator-set-up-in-unreal-engine-5
www.youtube.com/watch?v=RwRp3DIWkSE "UEFN HLODs, Data Layers, Level Optimizations"

SUMMARY

Technical Director of a shipped Unreal Engine 5 title featuring cutting-edge runtime destruction systems, specializing in scalable rendering, Niagara, and performance engineering. Recognized by Epic Games as a Certified UE5 Game Development Instructor and two-time Unreal Fest speaker covering runtime destruction and live-service level optimization. Passionate about building the next generation of interactive experiences with Unreal Engine.

INDUSTRY RECOGNITION

- Unreal Fest 2025 Speaker - 2 Technical Sessions on Optimizations and Runtime Destruction.
- Epic Games Certified UE5 On-Demand Game Development Instructor 2025-2026.
- Published Nanite Niagara Rendering Plugin for Unreal Engine.
- Technical Director of a shipped Unreal Engine 5 title, *Giantess Playground*.
- Featured in industry media coverage: VICE and 80 Level.

TECHNICAL EXPERTISE

Unreal Engine 4 & 5, Blueprint, C++, Unity C#, ECS/DOTS, HLSL, Rendering Pipelines, Materials & Shader Systems, Nanite, Niagara, PCG, LODs/HLODs, Streaming Systems, Engine Diagnostics & Tooling, CPU/GPU Profiling, Unreal Insights, GPU Visualizer, RenderDoc(Unity), Performance Analysis & Bottleneck Diagnosis, Memory & Streaming Optimization, Multiplayer & Replication, Runtime Systems, Multithreading, Technical Direction, System Architecture, Code Reviews, Mentorship, Production Optimization. Experience integrating AI/LLM/MCP tools into development workflows.

SELECTED ACCOMPLISHMENTS

- Supported 40+ studios and creators with Unreal Engine performance engineering, rendering optimization, diagnostics tooling, and scalability consulting.
- Presented two Unreal Fest 2025 technical sessions covering HLOD optimization, GPU simulation, destruction systems, draw distance management, and large-scale performance engineering.
- Conducted CPU, GPU, memory, streaming, and rendering investigations across Unreal Engine and UEFN projects, including Fortnite ecosystem performance analysis.
- Generated workflows for Blueprint-to-C++, AI, LLM, MCP development practices.
- Designed diagnostics methodologies, asset pipeline guidance, and performance-focused development practices for earlier bottleneck detection.

PROFESSIONAL EXPERIENCE

AGGRESSIVE PERFORMANCE

Lead Engine & Performance Consultant

June 2024 - Present

- Engine-level performance engineering and rendering optimization for Unreal Engine projects.
- Profiled CPU, GPU, memory, and streaming bottlenecks using Unreal Insights, GPU Visualizer, RenderDoc, and custom diagnostics workflows.
- Developed diagnostics workflows, optimization standards, and performance best practices.
- Optimized Niagara systems, rendering performance, GPU workloads, memory, and streaming across Unreal Engine productions.
- Established rendering, optimization, and profiling standards adopted across consulting engagements.
- Partnered with artists, technical artists, and engineers to improve visual quality while meeting production performance budgets.
- Provided asset pipeline guidance, scalability recommendations, and production readiness consulting.
- Conducted performance-focused code reviews emphasizing rendering efficiency, scalability, and maintainability.

AGGRESSIVE MASTERY

Technical Director

September 2018 - Present

- Led technical development of the commercially released Unreal Engine 5 title *Giantess Playground*.
- Architected rendering, Niagara, procedural generation, runtime destruction, and simulation systems using Unreal Engine 5, C++, Blueprint, and PCG.
- Built reusable systems enabling artists and designers to rapidly iterate while maintaining production performance targets.
- Designed GPU-driven systems using instancing, batching, pooling, and simulation techniques.
- Owned technical architecture, scalability planning, and engineering direction across development.
- Delivered continuous improvements in rendering, gameplay, streaming, and simulation performance.
- Mentored developers and studios on Unreal Engine rendering, performance engineering, and production optimization.

ENTERPRISE SYSTEMS ARCHITECTURE

2003-2018

- Designed large-scale, distributed, high-availability systems, cloud infrastructure, networking, and disaster recovery solutions for Fortune 500 organizations.

CENTURYLINK

Lead Global Sales Engineer 2015 - 2018

VIAWEST

Senior Sales Engineer 2011 - 2015

SUNGARD

Senior Sales Engineer & Operations 2003 - 2011

EDUCATION

EPIC GAMES: Certified UE5 On-Demand Game Development Instructor - June 2025

META: Horizon Worlds Creator Academy at META CONNECT 2025

PORTLAND STATE UNIVERSITY:

B.S. in Business Administration (Management & Human Resources) 2007

Additional undergraduate coursework in Computer Science

HEALD COLLEGE: A.A.S. in Computer Science 2003

Windows and Linux system building, network administration, troubleshooting; A+ / Network+ / CCNA