

YANN GRALLAN

SOFTWARE ENGINEER — GAMEPLAY & ENGINE PROGRAMMER

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<https://github.com/Xanhos> | Driving license (Category B)

Seeking an engine or gameplay systems programming role focused on tools, software architecture, and performance optimization in Unreal Engine 5 / C++ production pipelines.

PROFESSIONAL EXPERIENCE

Software Engineer Intern - Gameplay Programmer | **Sogeclair – Oktal SE** (Toulouse, France)

Unreal Engine 5 · C++ · Mass Entity (ECS) · Technical Documentation

April 2026 – August 2026

- Engineered a real-time tramway simulator in Unreal Engine 5 to a fixed technical specification, from architecture through delivery
- Reverse-engineered and extended a large third-party codebase (Epic's CitySample) to accelerate simulator development
- Adopted and applied the Mass Entity (ECS) framework to a production codebase, evaluating its fit against established gameplay patterns
- Engineered a WebSocket bridge between Unreal Engine and a JavaScript server to remotely control the tramway simulator, leveraging Unreal's reflection system to serialize class properties directly to JSON
- Designed a generic, procedural PCG system for generating roofs and overhead electrical lines, enabling reusable placement across varied urban layouts
- Sourced, evaluated, and integrated third-party plugins from the Fab marketplace to extend project capabilities
- Authored and maintained technical documentation and a design document tracking architecture decisions and project progress

PERSONAL PROJECTS

Logiccraft Core Utils - Unreal Engine 5 Utility Plugin

Unreal Engine 5 · C++20 · Template Metaprogramming · Blueprints

Logiccraft-Interactive · January 2025 – Present

- Architected a modular C++ utility plugin for Unreal Engine 5, structured into independent, reusable modules
- Built a lazily-evaluated, LINQ-style query library using CRTTP iterators and template inlining for zero-overhead abstractions
- Designed a type-safe monadic chaining system (Maybe Monad pattern) to eliminate cascading null checks and reduce defensive boilerplate
- Implemented a chunk-based actor pooling system with automatic shrink to reduce runtime allocation overhead
- Developed a save/load system with version migration support, exposed to designers through Blueprints

BreakerEngine - Custom C/C++ Game Framework

C · C++ · CSFML · Multithreading · Tooling

October 2025 – Present

- Designed and built a custom C wrapper layer over CSFML to streamline engine-level API usage
- Engineered a multi-threaded resource loading system with automatic file discovery, improving load-time efficiency
- Built an animation and particle system paired with a dedicated authoring tool for content iteration
- Implemented a state / sub-state architecture to structure gameplay flow across projects
- Developed internal tooling, including a memory tracker and categorized logging system, to support debugging and maintenance
- Maintained and extended the framework long-term across multiple production projects

EDUCATION

Game Academy - Game Developer Program

2022 – 2026

- Software architecture, Unity 6, Unreal Engine 5
- Languages: C / C++ / C#, with a focus on modern C++ (C++20)
- Version control and collaborative workflows (Git)

SKILLS

Languages: C, C++ (C++20), C#

Engines & software: Unreal Engine 5, Unity 6, Git, SFML, ImGUI, JetBrains IDE Suite, Visual Studio 2022, WampServer

Spoken languages: French (native), English (professional working proficiency)

Soft-Skill: Collaborative, Self-directed, Clear communicator, Curious