

# Mattia Silvestro

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## SUMMARY

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I'm a passionate Tools and Engine Programmer with a strong foundation in low-level C/C++ architecture and system design. Sole creator of the "RPG Creation Kit 2", a popular template on the Unity Asset Store, with additional active C++ development experience in Unreal Engine 5.

Recent Computer Science graduate (Dec 2025) currently architecting an open-source MMORPG framework, I'm looking to join a team of passionate developers to tackle complex gameplay challenges, build performant engine architecture, tools for designers, and continue growing.

## SKILLS

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**Programming Languages:** C, C++, C#, SQL, Java, Python, JavaScript, PHP, Swift, Lua

**Game Engines:** Unity, Unreal Engine 5, Custom C/C++ Engines

**Networking:** TCP/UDP Sockets, P2P, Client-Server Architecture, MMORPG frameworks

**Tools:** Git, Visual Studio, CMake, MySQL, Blender, Wireshark, Postman

**Core Competencies:** System Architecture, Tools Programming, Multi-Threaded Systems, Network Programming, Data-Oriented Design.

**Languages:** Italian - Native, English - Fluent.

## PROJECTS & EXPERIENCE

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### RPG Creation Kit 2

*Unity, C#*

[Portfolio Page Link](#)

*February 2020 - February 2026*

- Architected and solo-developed a **complete data-driven RPG framework** featuring complex core systems including asynchronous open-world streaming, custom AI Behavior Trees, full world serialization with dynamic entities and events saved and loaded, a scripting system, and numerous gameplay elements.
- Engineered intuitive, code-free Editor Tools to streamline workflows for game designers, including **visual node-based editors** for Behavior Trees and Dialogue graphs.
- Directed and **coordinated a small team** of 3D artists for the demo production, defining technical requirements and ensuring seamless integration into the systems.
- **Shipped and actively maintained the framework** on the Unity Asset Store for over four years, authoring comprehensive technical documentation and actively managing over 100 active users while sustaining a 4.8/5 star rating across 50+ reviews.

### NECRO MMO

*C++, SDL2, Boost.Asio, MySQL*

[Portfolio Page Link](#)

*April 2024 - In Progress*

- Architected and actively developing a **multi-threaded scalable MMORPG suite in modern C++**, built into four independent components (Client, Authentication Server, World Server, QA Testing Tool) sharing custom protocols and data models.
- Engineered a **high-performance asynchronous networking stack** using Boost.Asio, including a custom TCP library (Asio + Berkeley Sockets/WinSock), custom NetworkThreads for multi-threaded management, packet handlers, and asynchronous database workers.
- Developed modular 2D isometric **data-driven C++ game engine (NECROClient)** with layered architecture (resources manager, renderer, input, debug console, world definition, physics, entity system, animation, game logic), designed to operate under corrupted/missing data conditions.

- Designed and implemented a **secure authentication pipeline** featuring TLS handshakes, state-driven session management, IP spam prevention, idle/handshake timeouts, database logging, and AES-GCM 128-bit session key exchange for future encrypted communication with the World Server.
- Built **NECROHammer**, a synthetic load-generation and QA tool that simulates scripted clients to benchmark throughput, validate protocol correctness, and stress-test authentication and world servers.

## Raycaster Engine Series

*C, SDL2, Winsock*

### [Portfolio Page Link](#)

*June 2022 – May 2023*

- Designed and solo-developed a series of **open-source raycaster engines in plain C using SDL2**, implementing every subsystem from scratch (rendering, networking, asset manager, gameplay, AI, physics) without external libraries, inspired by early engines such as Doom and Wolfenstein 3D.
- Developed a **custom multi-threaded software renderer** built exclusively from a low-level `R.DrawPixel(...)` primitive to support textured walls, floors and ceilings, multi-layered levels, sprites and 8-angled billboards, animated sprites, depth buffering and fog rendering.
- Designed a **peer-to-peer TCP multiplayer architecture** using the low-level Winsock API, including a packet serialization format and manual send/receive buffer management to mitigate possible TCP stream segmentation.
- Built a **complete online gameplay loop** featuring FSM AI, lobby and class selection (Tank, Healer, DPS), spells and cooldown systems, multi-phase boss encounters with unique mechanics, and synchronized combat logic across the networked peers.
- Developed a **custom asset archive format (.archt) with a dedicated archiving tool** (To-mentARCH) and a level editor with a custom map format to support developing onto the engine.

## MyTournament

*Unreal Engine 5, C++*

### [Portfolio Page Link](#)

*October 2025 – In Progress*

- Developing an **open-source multiplayer arena FPS prototype** in Unreal Engine 5, implementing core systems in C++ with flexible Blueprint support to maximize architectural control.
- **Studying and leveraging Unreal Engine's source code** to understand the engine architecture.
- Designing **modular, data-driven systems** for character movement (dash, wallrun), weapons (projectile & linetraces), inventory, equipment, and pickups using components and interfaces for scalability, reusability and multiplayer.

## OTHER PERSONAL PROJECTS

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### MMO Accounts & Characters System 2 (MMO-ACS)

*Unity, PHP, MySQL*

#### [Unity Asset Store](#)

*November 2019*

- Developed and published a simple **MMO backend system for Unity**, implementing authentication, character persistence, and server-authoritative data management through a scalable PHP/MySQL architecture.

## Auctioneer

*Unity, PHP, MySQL*

### [Unity Asset Store](#)

*June 2019*

- Developed and published a **configurable server-authoritative auction house system** with listing, bidding, buyout, expiration and in-game emails powered by a persistent PHP/MySQL backend.

## TomentMapEditor

*Java, Swing*

### [GitHub](#)

*May 2023*

- Built a **Java Swing-based map editor** with a custom serialization map format to simplify level creation with the TomentRaycaster engine.

## VegasCoop

*C++, Game Modding*

### [GitHub](#)

*September 2025*

- Developed a **multiplayer prototype mod for Fallout: New Vegas**, reverse-engineering game systems and achieving players position/rotation replication.

## TastEcho

*Swift*

### [GitHub](#)

*November 2024*

- Helped developed with a 5 person team an **accessibility-focused SwiftUI iOS application** delivering structured, voice-guided cooking workflows tailored for blind and visually impaired users.

## BDawn

*Node.js, JavaScript, MySQL*

### [GitHub](#)

*January 2023*

- Developed a **data-driven RPG browser game engine** with persistent MySQL-backed progression and modular server-side systems for combat, items, and character growth.

## EDUCATION

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University of Naples "Parthenope"

Naples, Italy

Bachelor's degree in Computer Science

*2022 - 2025*

- **Favorite Courses:** Computer Architecture, Algorithms and Data Structures, Operating Systems, Distributed and Parallel Computing, Computer Networks.