

FEDERICO COSTANTINI

Graphics Engineer & Game Programmer



EDUCATION

Master in Computer Science & Eng.

Politecnico di Milano

Specialization in Computer Graphics, Game Programming and AI.

2023 – Present

Bachelor in Computer Science & Eng.

Politecnico di Milano

Grade: 110/110 cum laude

High School Diploma

Liceo Scientifico Statale "Giulietta Banzi Bazoli"

Grade: 100/100 cum laude

Exchange Student Program (AFS)

Conard High School, CT, USA

Achieved full fluency in English during a year-long exchange.

2020 – 2023

2015 – 2020

2018 – 2019

KEY PROJECTS

Toroidal Vulkan Path Tracer (R&D)

Custom Ray Tracing Engine

C++, Vulkan, GLSL

Developed a custom engine supporting non-Euclidean toroidal topology. Implemented Physical Based Rendering and a "Toroidal Scanner" for Gaussian Splatting datasets.

Custom Vulkan Rasterizer

Graphics Engine From Scratch

C++, Vulkan SDK

Engineered a low-level engine handling explicit memory management. Built a vehicle simulation benchmark with optimized command buffer recording.

Nailed It

Game Project

Unity, C#

Created a 2D platform game with point & shoot mechanics for the course "Video game Design and Programming" at Politecnico of Milan.

OpenGL Safety Critical Analysis

Performance Analysis

C++, OpenGL Core/ES

Benchmarked Desktop vs Safety Critical (SC) rendering pipelines. Simulated SC constraints to prove deterministic execution times for avionics.

My Shelfie (Distributed System)

Software Engineering Course

Java, RMI, Sockets

Architected a distributed digital board game with Dual-Network layer (RMI/Socket) and MVC pattern. Implemented concurrent client state management.

EXPERIENCE

Junior Software Engineer

Healthy Reply (Reply S.p.A.)

Sept 2023 – Mar 2024

Developed scalable microservices for the healthcare sector using Java/Spring. Worked in Agile teams to optimize enterprise architecture.

Left to pursue Master's Degree full-time.

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👤 FedericoCos

HARD SKILLS

Languages

C++ C# Python C
Java TypeScript

Graphics & APIs

Vulkan OpenGL GLSL
HLSL Unity 3D

Concepts

Ray Tracing, Rasterization,
MVC, Game Development,
Safety-Critical Systems
Graphic Pipeline

LANGUAGES

Italian · Native
English · Professional (B2)
Exchange Program (USA)

ADDITIONAL SKILLS

Drumming

Certified by Yamaha Music School