FEDERICO
COSTANTINI

Graphics Engineer & Software Developer

Lecce, Italy

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federicocos.github.io

FedericoCos

EDUCATION

Master of Science in Computer Science & Eng. **2023 – Present**
Politecnico di Milano
 Specialization in Computer Graphics, Game Programming and AI.

Bachelor of Science in Computer Science & Eng. **2020 – 2023**
Politecnico di Milano
 Grade: 110/110 cum laude

High School Diploma **2020 – 2023**
Liceo Scientifico Statale "Giulietta Banzi Bazoli"
 Grade: 100/100 cum laude

Exchange Student Program (AFS) **2018 – 2019**
Conard High School, CT, USA
 Achieved full fluency in English during a year-long exchange.

HARD SKILLS

Languages
C++ C# Python C Java TypeScript

Graphics & APIs
Vulkan OpenGL GLSL HLSL Unity 3D

Concepts
Ray Tracing, Rasterization, MVC, Distributed Systems, Safety-Critical Systems

KEY PROJECTS

Toroidal Vulkan Path Tracer (R&D) **C++, Vulkan, GLSL**
Custom Ray Tracing Engine
 Developed a custom engine supporting non-Euclidean toroidal topology. Implemented wrapping light transport and a "Toroidal Scanner" for Gaussian Splatting datasets.

Custom Vulkan Rasterizer **C++, Vulkan SDK**
Graphics Engine From Scratch
 Engineered a low-level engine handling explicit memory management. Built a vehicle simulation benchmark with optimized command buffer recording.

OpenGL Safety Critical Analysis **C++, OpenGL Core/ES**
Performance Analysis
 Benchmarked Desktop vs Safety Critical (SC) rendering pipelines. Simulated SC constraints to prove deterministic execution times for avionics.

My Shelfie (Distributed System) **Java, RMI, Sockets**
Software Engineering Course
 Architected a distributed digital board game with Dual-Network layer (RMI/Socket) and MVC pattern. Implemented concurrent client state management.

LANGUAGES

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

ADDITIONAL SKILLS

🎵 **Drumming**
Certified by Yamaha Music School

EXPERIENCE

Junior Software Engineer **Sept 2023 – Mar 2024**
Healthy Reply (Reply S.p.A.)
 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.