

FEDERICO  
COSTANTINI

Graphics Engineer & Game Programmer

EDUCATION

<b>Master in Computer Science &amp; Eng.</b> <i>Politecnico di Milano</i> Specialization in Computer Graphics, Game Programming and AI.	2023 – Present
<b>Bachelor in Computer Science &amp; Eng.</b> <i>Politecnico di Milano</i> Grade: 110/110 cum laude	2020 – 2023
<b>High School Diploma</b> <i>Liceo Scientifico Statale "Giulietta Banzi Bazoli"</i> Grade: 100/100 cum laude	2015 – 2020
<b>Exchange Student Program (AFS)</b> <i>Conard High School, CT, USA</i> Achieved full fluency in English during a year-long exchange.	2018 – 2019

KEY PROJECTS

<b>Toroidal Vulkan Path Tracer (R&amp;D)</b> <i>Custom Ray Tracing Engine</i> Developed a custom engine supporting non-Euclidean toroidal topology. Implemented Physical Based Rendering and a "Toroidal Scanner" for Gaussian Splatting datasets.	C++, Vulkan, GLSL
<b>Custom Vulkan Rasterizer</b> <i>Graphics Engine From Scratch</i> Engineered a low-level engine handling explicit memory management. Built a vehicle simulation benchmark with optimized command buffer recording.	C++, Vulkan SDK
<b>Nailed It</b> <i>Game Project</i> Created a 2D platform game with point & shoot mechanics for the course "Video game Design and Programming" at Politecnico of Milan.	Unity, C#
<b>OpenGL Safety Critical Analysis</b> <i>Performance Analysis</i> Benchmarked Desktop vs Safety Critical (SC) rendering pipelines. Simulated SC constraints to prove deterministic execution times for avionics.	C++, OpenGL Core/ES
<b>My Shelfie (Distributed System)</b> <i>Software Engineering Course</i> Architected a distributed digital board game with Dual-Network layer (RMI/Socket) and MVC pattern. Implemented concurrent client state management.	Java, RMI, Sockets

EXPERIENCE

<b>Junior Software Engineer</b> <i>Healthy Reply (Reply S.p.A.)</i> Developed scalable microservices for the healthcare sector using Java/Spring. Worked in Agile teams to optimize enterprise architecture. <i>Left to pursue Master's Degree full-time.</i>	Sept 2023 – Mar 2024
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FedericoCos

HARD SKILLS

Languages

C++C#PythonCJavaTypeScript

Graphics & APIs

VulkanOpenGLGLSLHLSLUnity 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