

Stefano Lanza

Principal Software Engineer

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I am software engineer with over 20+ years of experience working with companies from all over the world. I am highly experienced in the design and development of multi-platform, core technologies for resource critical applications such as games, simulations and middlewares. My specializations are engine and graphics programming. I primarily code in C/C++ 17

EXPERIENCE

Bright Star Studios

October 2023 - September 2024

Senior Engine Developer

As part of the engineering team, I developed a proprietary, multi-platform game engine, targeting Windows and the Web3, built with C++ 17, entt, WebGL, Emscripten and bgfx. My work focused on graphics and optimizations.
I also contributed to the editor development and integrated a third-party UI library.

Organum Limited

January 2022 - January 2023

Programming consultant

I ported the PlayScore2 music-recognition app from iOS/Android to Windows 10/11, using C++ 17, C++/WinRT and WinUI 2
I was also responsible for publishing the app on the Microsoft Store and supporting customers
The Windows app is a commercial success

Foundry

September 2020 - November 2021

Principal Software Engineer

I worked on:

- FoundryGL - a proprietary OpenGL driver for MacOS and Linux built on top of Mesa, Zink, MoltenVK
- AVP - OpenGL based advanced rendering framework
- USD rendering plugin for Katana, Nuke and Pixar's USDView
- Misc. improvements and bug fixes for Foundry's DCC products

Social Point

January 2018 - April 2020

Senior Game Developer

As part of the Platform Team, I worked on cross-platform (iOS, Android, Windows) core technologies, embedded in all the company's mobile games. My main tasks were:

- Add support for in-game-purchases through the Microsoft store
- Extend Cocos2dx to load assets from compressed archives
- Integrate libwebsockets for network-based services
- Integrate Spine in our engine for 2D animations

ZeroLight

January 2016 - May 2016

Subcontractor Software Engineer

I worked in R&D focused on the photorealistic, real-time, high-quality rendering of vehicles, for the automotive industry, using the Unity engine.
My main contributions:

- Elliptical filtering for high quality anti-aliased, anisotropic texture mapping
- High-order image resampling filters
- Specular antialiasing strategies
- A tool for capturing and compositing screenshots, for marketing

Havok

September 2013 - January 2016

Software Engineer

As part of the Military & Simulation team, I worked on:

- HLA network library for the synchronization of multiple systems simulating vehicles, articulated parts and characters.
- Photo-realistic, unconstrained rendering of the Earth atmosphere, as a plugin for the proprietary Vision engine
- Real-time ambient lighting, based on spherical harmonics

Jagex

May 2011 - December 2012

Senior Graphics Programmer

As part of the rendering team for the game Transformers Universe, I developed most of the components of its new graphics engine:

- VFX engine
- Terrain system with LOD, material painting and heightmap sculpting
- Lighting (cascaded shadow mapping, point lights)
- Sky and aerial scattering
- Text rendering
- Memory allocators, in-game logging and profiling tools

Frontier

January 2010 - January 2011

Senior Rendering Programmer

I was part of the rendering team for The Outsider, an unreleased AAA title for the Xbox360, PS3 and Windows platforms. My contributions were: water simulation and rendering, indexed deferred lighting, aerial scattering, lens flares, volumetric lighting, deferred transparency

Divenav

October 2006 - April 2008

Programmer

I was the main programmer of the eDiving scuba diving simulator (<http://www.ediving.us>). Built on top of my own Typhoon engine. I worked on its graphics, physics simulation, networking, AI, GUI and partly on the simulation mechanics
I was also responsible for supervising and coordinating another programmer and two artists

Eutechnyx

April 2005 - September 2006

Technology Programmer

I worked on graphics effects and technologies for the Xbox and Windows platforms: water rendering, subdivision surfaces, spherical harmonics lighting, various shaders for the rendering of skin, vegetation and other materials
I also worked on a sound library with FFT-based filters for pitch and frequency manipulation.

PROJECTS

LuaBind

<https://github.com/StefanoLanza/LuaBind>

Lua/C++ 17 binding library, targeting game engines.

Reflection

<https://github.com/StefanoLanza/Reflection>

Reflection and serialization library for C++ 17, targeting game engines.

SweetCrush

<https://github.com/StefanoLanza/SweetCrush>

Cross platform match3 game, featuring colourful graphics, music, sound effects and animations. Written in C++ 17, running on Windows 10/11, Linux and Android.

Typhoon

<https://twitter.com/TyphoonEngine>

Game engine specialized in the simulation and rendering of planetary-scale environments. Featuring many visual effects seen in commercial AAA engines. Its selling point is the integration of advanced and innovative techniques for the simulation of oceans.

Licensed by a commercial iOS game (<https://apps.apple.com/us/app/alliance-air-war/id1059604202>), the eDiving scuba diving simulator and an underwater robotic simulation.

PUBLICATIONS

Animation and Rendering of Underwater God Rays

December 2006

ShaderX 5, Charles River Media

- This article describes a technique for rendering underwater light shafts in real-time on consumer graphics hardware.

Animation and Display of Water

November 2004

Charles River Media

- This article describes a technique for animating and rendering water realistically and efficiently on graphics cards supporting shader model 2.

EDUCATION

Politecnico di Milano

January 1999 - December 2005

Degree in Telecommunications Engineering

Université libre de Bruxelles

January 2004 - December 2005

Master Thesis

Master thesis on a vision system for autonomous robots controlled by neural networks trained via genetic algorithms.

LANGUAGES

English, Italian, Spanish