

Daniel-Alin Loghin

Senior Graphics Engineer

PERSONAL DETAILS

<i>Birth Date</i>	September 5, 1988
<i>Address</i>	Cluj Napoca, Romania
<i>Email</i>	alin.loghin@gmail.com
<i>Portfolio</i>	http://alinloghin.com/
<i>LinkedIn</i>	https://www.linkedin.com/in/daniel-alin-loghin
<i>Github</i>	https://github.com/tuxalin

TECHNICAL SKILLS

<i>Programming Languages</i>	C/C++, C#, JS, HLSL, GLSL.
<i>Frameworks and Libraries</i>	STL, Boost, OpenGL, OpenGL ES, Vulkan, WebGL, Unreal Engine.
<i>Theory</i>	OOP, data structures and algorithms computational geometry, linear algebra multithreading, low-level programming, realtime computer graphics, shaders.
<i>Tools</i>	Unity3D, 3DS Max, Photoshop, Substance Painter, ZBrush, IRay, V-Ray, CMake, Perforce, Git, SVN, JIRA, Crucible, Jenkins, UML, Visual Studio, XCode.
<i>Operating Systems</i>	MacOS X, Linux, Windows.

Senior Graphics Engineer

Nov 2019 - Present

InstaLOD, remote

Working on InstaMAT, a graph based authoring tool for procedural materials.

- responsible for the graph standard library, product and market research required for the MVP.
- implementation of the atomic nodes (e.g. soft distance transform, edge detection, flood fill, blur), noise and procedural generators, other graph utilities (e.g. PBR renderer).
- research on more advanced features: texture synthesis nodes, FFT, GPU algorithms.

Mainly used: C++11, STL, OpenGL, GLSL/HLSL.

Also used: Intel MKL, Qt, Python, Rust, Substance Designer, Substance Painter, Shadertoy.

Environments: Windows.

Senior Graphics Engineer

Feb 2018 - Sep 2019

4DPipeline, remote

Consultant work on various graphics related projects

- worked on an asset conversion pipeline, conversion scripts in MaxScript, tooling and automation.

- worked on plugins for UE4 involving: PBR material distillation, complex BRDFs (clearcoat, carpaint, SVBRDF, BTFs, etc.), support for MDL and AxF materials, glTF importer, glTF extensions support.
- worked on other projects involving: raytracing, material graphs, realtime high-quality viewer in WebGL, advanced material system.
- for various clients such as: AMD, Turbosquid, Epic Games, IKEA.

Mainly used: C++11, UE4, GLSL/HLSL, Visual Studio, MaxScript, C, WebGL, THREEJS, MDL SDK, AxF SDK.

Also used: 3DS Max SDK, Pantora, 3DS Max, IRay, VRay, Unity, Node.JS, Google Puppeteer, Python, Simplygon SDK, AWS CLI.

Environments: Windows.

Technical Lead

Jan 2016 - Feb 2018

Telenav, Cluj-Napoca, Romania

Technical Lead of the MapDisplay component

- leading a team of several senior engineers, in charge of the hiring process, involved in R&D and product ownership.
- designed a new multi-threaded architecture, needed to support various platforms(Android, IOS, QNX, Linux, OSX), multiple rendering APIs(OpenGL 3.+, GLES2, GLES3, DX11) and multiple map data providers.
- implementation of critical components of the engine such as command buffers, geometry generation and rendering, shaders, spatial culling, collisioning system.
- implementation of a world terrain renderer with features such as: continuous LOD, synthesis, VTF, dynamic.
- usage of custom allocators and lock-free programming techniques to reduce memory fragmentation and congestion issues.
- new engine iteration achieved a performance improvement of almost 3x over the previous, withing the given memory budget, it also had improved rendering quality and better map styling flexibility(a new custom styling language was created).

Mainly used: C++, Boost, OpenGL, OpenGL ES, GLSL, XCode, Instruments, UML, CMake, Git.

Also used: Direct3D, HLSL, QtCreator, OpenGL Shader Builder, Doxygen, Sublime Text, JNI, Android Studio, imgui, Valgrind.

Environments: Linux, MacOS X.

Senior Software Engineer

Aug 2015 - Jan 2016

Telenav, Cluj-Napoca, Romania

Member of the Core Navigation team, MapDisplay component

- switched from the mobile department to the automotive one to help meet the KPIs of an important release.
- delivered over 35% performance optimizations(multi-threading, algorithmic, math).
- fixes for stability and memory consumption issues.

Mainly used: C/C++, OpenGL, GLSL, XCode, Instruments, Boost, CMake, SVN.

Also used: Android Studio, Visual Studio,Java, JNI.

Environments: Windows, MacOS X.

Software Engineer

Feb 2013 - Aug 2015

Skobbler GmbH, Cluj-Napoca, Romania

Member of the Core Navigation team, MapDisplay component

- ported the rendering component to support OpenGL ES 2.0 by also providing backward compatibility with ES 1.0.
- worked on the line rendering(eg. Shader-Based Antialiased, Dashed, Stroked Polylines by Nicolas P. Rougier).
- worked on geometry tessellation, text rendering, animations(eg. inertial panning), extensions support(eg. framebuffer fetch).
- bug fixes and support for multiple platforms(Android, IOS, OSX, Linux).
- performance and multi-threading improvements of over 50%.

TileServer project

- implementation of a web-service for rendering map tiles using the Core library's rendering component.
- quality improvements over the mobile version for features such as crisper texts and lines.
- worked on heightmap and topological lines rendering.
- performance optimizations both on rendering and server side, multi-GPU rendering setup, memory leak fixes, testing suites to meets KPIs.

Mainly used: C/C++11, OpenGL, OpenGL ES, GLSL, XCode, iOS Simulator, Instruments, QtCreator, UML, SVN.

Also used: Adreno Profiler, Mali SDK, OpenGL Shader Builder, ADB, Valgrind.

Libraries used: Freetype, libpng, libjpeg, libimagequant, Boost, GLEW, FCGI, GLU, pthread.

Environments: MacOS X, Linux.

Software Developer

May 2012 - Feb 2013

Softvision, Cluj-Napoca, Romania

Member of the Pinger development team

- worked on an interactive messaging application for the Windows and Mac platforms.
- main work involved on the frond-end side(GUI, QML, animations).
- also worked on the back-end side(web services, batching).

Mainly used: C++, Qt, Qt Creator, Qt Designer, SVN.

Also used: CSS, SQL, QML, JavaScript, Boost, Objective-C, WinAPI.

Environments: Windows, MacOS X.

Programmer

Sep 2007 - Aug 2014

www.europabarbarorum.com, volunteer

Developed and offered support for community and internal tools

- developed a simple 3D application in OpenGL for previewing purposes.
- graphic enhancement mod(in HLSL) for Direct3D 9 games based on the ENB series.
- some reverse engineering(using 010 Editor and IDA32) on the M2TW internal asset format.
- assisted johnwhile(johnwhilemail@gmail.com) with his work on the .cas importer/exporter in MaxScript.

Mainly used: OpenGL, HLSL, MaxScript.
Also used: IDA32, 010 Editor.

3D Artist/Animator

July 2004 - Aug 2014

www.europabarbarorum.com, volunteer

In charge of the graphics department and 3D artist

- modelling, rigging and texturing(diffuse, normal, alpha, specular maps) of 3D characters.
- modelling and texturing of various props, such as: buildings, vegetation, map icons, etc.
- biped animation for the characters.
- UI design.

Mainly used: 3DS Max, Adobe Photoshop.

EDUCATION

Master Computer Science

2011

Technical University of Cluj-Napoca, Romania

Computer Science in Engineering

- Real Time Operating Systems, Scheduling Algorithms, Context Switching
- FPGA Architecture, Low Power Design using FPGA, Multimedia Embedded Processors
- Green Computing, Web Server Security, Software Complexity, Background Subtraction Techniques

BSc. Computer Science

2007 - 2011

Technical University of Cluj-Napoca, Romania

Curriculum:

- C/C++, Assembly, Algorithms and data structures,
- Matlab, Analytical Geometry, Statistics, Finite mathematics
- Agile Theory, C#, Design Patterns, GRASP, UML
- Fundamental Algorithms, Prolog, Genetic Programming, Constraint Programming
- Databases, SQL, Web services, PHP, Java EE, Swing, JavaScript
- Adobe Flash, ActionScript 3.0, Silverlight, Neural Networks, AI
- Computer Vision, Image Processing, OpenCV, Road traffic sign recognition
- Linear Algebra, Computer Graphics, OpenGL, WinAPI
- Logic Design, Xilinx, VHDL, Adders, Multipliers, RISC Architectures
- Computer Architecture, MIPS Design, Instruction Set, Pipelineing, Branch Predictor
- Operating Systems, File System, OS Kernel, Computer Networks, Network Protocols
- Formal Languages and Translators, Functional Programming, Haskell, Lisp

Diploma thesis: Designing an API independent 3D engine.

- study of the OGRE engine architecture and various geometric algorithms.
- implementation in C++ using OpenGL, STL, Boost of a proposed 3D engine design similar to OGRE.

High School

2003-2007

Dragos-Voda of Campulung Moldovenesc, Romania

Mathematics - Informatics

Certificate of professional competence, an historical presentation about the Dacian army

- creation of models, animations and textures in 3D Studio Max and Adobe Photoshop.
- presentation video using Sony Vegas Studio.

LANGUAGES

<i>Romanian</i>	Native
<i>English</i>	Fluent
<i>German</i>	Elementary, B1

HOBBIES AND INTERESTS

<i>IT</i>	modeling and texturing computer graphics, procedural generation
<i>Science</i>	quantum physics, astronomy
<i>Sports</i>	football, hiking
<i>Other</i>	video games, macroeconomics ancient history