



Alexander POTAPOV

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## SUMMARY

C++/OpenGL/Vulkan graphics developer. Working on rendering engine backend, shader compilers and game engine internals. Have experience with OpenGL, DirectX11 and Vulkan API. Proficient in working with large code bases, optimizing and debugging rendering code (RenderDoc, NSight). Interested in real-time rendering, low-level programming and game engine design.

## EDUCATION

### HIGHER SCHOOL OF ECONOMICS UNIVERSITY

2020 - Now / Moscow, Russia

B.S IN SOFTWARE ENGINEERING

- Calculus, Linear Algebra, Discrete Mathematics, Software Development, Operating Systems, Computer Architecture

## EXPERIENCE

### NANOSEMANICS

October 2020 - June 2021 / Moscow, Russia

C++/PYTHON SOFTWARE ENGINEER

- Written a compiler for internal company programming language (AI dialogue patterns)

### EAGLE DYNAMICS

August 2021 - May 2022 / Moscow, Russia

3D GRAPHICS DEVELOPER

- Ported EDGE game engine to Vulkan. Created utilities for cross-compiling FX shaders to SPIR-V

### BRICKS

May 2022 - Now / Remote

FRONTEND DEVELOPER

- Implementation of core features of Excel-like spreadsheet (rendering, charts, tables). TypeScript + SolidJS. Canvas DOM rendering

## SKILLS

**PROGRAMMING LANGUAGES** *Experienced:* C++ *Familiar:* C# | Python | TypeScript

**GRAPHICS PROGRAMMING** Deferred Rendering | Physically-Based Rendering | Render Graph | RenderDoc

**LIBRARIES / APIs** OpenGL | DirectX11 | Vulkan | GLSL/HLSL | DXVK | GNU Bison/ANTLR

**LANGUAGES** *Native:* Russian *Fluent:* English

## OPEN-SOURCE PROJECTS

<b>MXENGINE</b>	General-purpose 3D game engine (deferred rendering, PBR, physics, audio, editor tools)	<a href="#">github</a>
<b>VAL</b>	Render Graph-based Vulkan rendering library (automatic barriers, shader reflection)	<a href="#">github</a>
<b>FLUID SIMULATION</b>	2D realtime fluid simulation from GPUGems book (with CUDA as compute backed)	<a href="#">github</a>
<b>PATH TRACER</b>	GLSL path tracer (based on MxEngine, supports diffuse, reflective and transparent objects)	<a href="#">github</a>
<b>ANGOURIMATH</b>	Symbolic algebra library for C# (one of main contributors, worked on analytic solvers)	<a href="#">github</a>

## EXTRA

### FAVOURITE BOOKS

- Game Engine Architecture by Jason Gregory
- Effective Modern C++ by Scott Meyers
- Modern C++ Design by Andrei Alexandrescu

### FAVOURITE GAMES

- Witcher 3
- Dark Souls III
- Doom Eternal