

Alexey Larionov

RENDERING SOFTWARE ENGINEER · AUGMENTED REALITY (AR)

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Skills

Programming: Python, C++17, Rust, C#, Java, JavaScript

Technology: OpenGL ES, GLSL, Unity, Godot, ARCore, Android, OpenXR, FFmpeg, PyTorch, Linux, Docker

Languages: English (C1), Korean (B1), Polish (A1), Russian (native)

Experience

Huawei

Dec 2023 – Present

SENIOR GRAPHICS SOFTWARE ENGINEER

Moscow, Russia

- Developing the graphical kernel of a mobile operating system (HarmonyOS) in C++.

SAMSUNG AI Center

Sep 2021 – Dec 2023

MIDDLE R&D ENGINEER

Moscow, Russia

- Porting my internship AR mobile app into Unity (C#), making C++ plugins to use OpenGL features and to run neural networks.
- Solely completed the most crucial yearly KPI of the team, being the only developer for the production part in a research project.
- Reduced frame time by 67% in that AR app, via efficient use of OpenGL, GLSL shaders, and cache-friendly data flow.
- Made a baseline VR experience for Oculus Quest, via C++ and OpenXR without a game engine.
- Authored a scientific paper on computer graphics and neural networks (PyTorch, Docker): samsunglabs.github.io/MoRF-project-page

SAMSUNG AI Center

Jun 2021 – Aug 2021

R&D ENGINEER INTERN

Moscow, Russia

- Solely developed an Android app for augmented reality, that renders animated human avatars via neural networks.
- Learned and applied Java, ARCore, OpenGL and GLSL shaders for human mesh rendering and animation with high performance.
- Achieved 30 FPS performance for the neural network in 256px resolution on mobile hardware.

Freelancer at Upwork.com

2020, 3 months

- Completed small projects: added multi-threading into a C++ script; added authentication into Typesense (C++) and Meilisearch (Rust).

Personal Projects

Web-tool for image manipulation (JavaScript, p5.js)

2023, 1 month

- Implemented interactive measuring of trees on photos. It helped forest researchers to speed up their workflow ten-fold.
- Try online (alexlarionov.online/eng). Source code (github.com/laralex/TreesRuler)

OpenGL course for graduate students (Python)

2022, 2 months

- Authored 12 interactive demos to teach absolute OpenGL beginners. github.com/laralex/PyOpenGL_Demos

Tool for procedural 3D models (C#)

2020, 3 months

- Created random generation of 3D meshes of buildings (method of formal grammars). github.com/laralex/ProceduralBuildings

PC game «Will & Reason» (Unity, unreleased)

2017, 4 months

- Volunteered to a team of 10 people making a 4X strategy game. Made path finding with terrain passability, and parts of UI.

Chess game (C++, SFML)

2016, 1 month

- Implemented all the game logic. Made the rendering customizable via configuration files. github.com/laralex/chess

Education

MSc with Honors in Information Science (GPA 5/5)

Sep 2020 – Jun 2022

SKOLTECH · SKOLKOVO INSTITUTE OF SCIENCE AND TECHNOLOGY

Moscow, Russia

- Researched augmented and virtual reality based on neural networks, supervised by renowned Dr. Victor Lempitsky.

BSc with Honors in Computer Science (GPA 5/5)

Sep 2016 – Jun 2020

SPBSTU · PETER THE GREAT ST. PETERSBURG POLYTECHNIC UNIVERSITY

Saint Petersburg, Russia

- Awards: Semi-finalist of the world olympiad ACM ICPC, the best project in collaboration with TU Graz (Austria), «Student of the year».