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, WebGPU, Unity, ARCore, Android, OpenHarmony OS, PyTorch, Docker, OpenXR, FFmpeg

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

Experience

Huawei   Dec 2023 – Present

SENIOR SOFTWARE ENGINEER   Moscow, Russia

- Integrated an in-house C++ library for frame prediction as a Unity game engine plugin for OpenGL/Vulkan API, for URP Unity pipeline.
- Did research on performance improvement in Genshin Impact game using hooks of OpenGL commands.
- Developing graphical subsystems of the firmware for the new mobile operating system OpenHarmony: fixing bugs, code review.

SAMSUNG AI Center   Jun 2021 – Dec 2023

MIDDLE R&D ENGINEER (1 YR 7 MOS), JUNIOR (7 MOS), INTERN (2 MOS)   Moscow, Russia

- Solely developed an Android app for augmented reality, that renders animated human avatars via neural networks in 60 fps.
- Implemented via Java, ARCore, OpenGL and GLSL shaders for human mesh rendering and animation with high performance.
- Ported the mobile app into Unity game engine (C#), made C++ plugins to use OpenGL features and to run neural networks.
- 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, Python): samsunglabs.github.io/MoRF-project-page
- Solely completed the most crucial yearly KPI of the team, being the only developer for the production part in a research project.

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-CV with interactive rendering demos (Rust, JavaScript, WebGPU)   Feb 2024 – Present

- *(work in progress)* My own interactive résumé. Made UI/UX in plain JS, and 3D graphics in Rust + WebGPU.
- Try online (alexlarionov.online). Source code (github.com/laralex/my_web_cv)

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/trees_ruler). 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.

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».