

Vsevolod Batalin

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Skills

Languages: C++, C#, Java, Lua, Python, Assembly, HLSL, GLSL

Graphics Techniques: Deferred shading, Ray/Path tracing, Cubemaps, Shadow mapping, PBR, Material systems, Bump mapping, Advanced shading methods, BSP-tree, Octree, HBV, Portal Culling, Post-processing effects, Particle systems, Billboarding

Tools/APIs: Visual Studio 2019/2022, Visual Code, OpenGL, Vulkan, Premake5/CMake, NVIDIA Nsight, RenderDoc, Unity, Godot, Qlik

Other: Strong 3D mathematics background (quaternions, linear algebra, calculus, curves, surfaces), In-depth understanding of graphics pipelines and GPU architecture, Software Development, Computer Vision

Experience

2022 - Aug 2024 - Software Engineer, Israel Defense Forces, Israel

Developed diverse software applications using C++ and Python to address various military requirements

Collaborated with cross-functional teams to design and implement efficient software solutions

Applied computer vision techniques and microcontroller programming to meet specific army needs

Initiated and developed personal projects to enhance army workflow efficiency

Contributed to the development and maintenance of complex software systems

Collaborated with Elbit Systems to deliver real-time information using Qlik for optimal data representation

Projects

Orion: 3D graphics engine (C++, OpenGL)

Falling Pixels: Material and liquid simulation (C++, Orion engine)

GPU Path Tracer: Real-time path tracer (CUDA, SFML)

CPU Ray Tracer: Multithreaded implementation (C++, SFML)

StarComet: 2D game similar to Asteroids (C#, MonoGame)

SmoothTetris: Custom Android Tetris variant (Java, Android Studio, SQL)

Ongoing: Singularity Engine - Vulkan-based engine featuring GPU-accelerated path tracing and comprehensive multiplatform support (Windows, Linux, macOS, Android, iOS)

Planned: Vulkan voxel-based engine or CPU rasterizer

Education

Current - Pursuing Computer Science and Physics Bachelor's degree at Open University of Israel

2022 - Shimon Peres High Tech and Arts High School, Tel Aviv – Full attestation, Computer Programming specialization

Languages

English: Fluent

Hebrew: Intermediate

Russian: Native