Alex Komissarov

krems.pudi@gmail.com

linkedin.com/in/alexandr-komissarov/

github/pudnax

Citizenship: Qazakstan

EMPLOYMENT

Software Developer **M.N. Mikheev Institute of Metal Physics** **Dec 2022 - May 2023**

- Writing programs from physics simulations and contributing to the open-source tools we used
- Creating data visualizations for data analysis
- Maintained high uptime of servers and computational clusters with automated CI/CD and writing scripts in UNIX / LINUX environment

Student Researcher **Ural Federal University** **Jul 2022 - Nov 2022**

- Creating and maintaining C++ and Python applications for data processing and analysis purposes
- Refactoring big legacy systems to improve testability and performance

PERSONAL PROJECTS

GPU Driven Renderer: **pudnax/voidin**

- Deferred pipeline with PBR lighting with loading GLTF models
- Compute based frustum culling
- Raytraced shadows using BVH
- TAA

Software rasterisation with Compute shaders: **pudnax/compaster**

- Used triangle rasterization algorithm with atomic add technique, which is used in particle cloud rasterizers
- Heavily utilized Compute Shaders to implement a real time GPU rasterizer
- Profiled optimizations and performance using RenderDoc and Nsight

Tool for shader coding and live performances: **pudnax/pilka**

- Composed rendering pipeline with runtime reloading, caching to interact with models and test various shaders
- Achieved multithreaded video recording in both Vulkan and WGPU implementation

EDUCATION

Yekaterinburg, YEK **Ural Federal University** **Expected: June 2023**

- **Major**: Applied Physics, B.S. (GPA: 4.2, Specialization: Math, Programming)
- **Courses**: Linear Algebra, Numerical Methods, Algorithms and Data Structures, Engineering Graphics, Statistics, Theoretical Physics, Applied Hydrodynamics.
- **Skills**: Rust, C++, C, Python, GLSL, Vulkan, WebGPU, 3D Graphics, Databases, CUDA, Linux, Git, Matlab, Tensor Calculus

SHADER ART portfolio

- Got great practice in signed distance field (SDF) shaders, post processing, volumetric tricks and other techniques used in demoscene.
Also overall knowledge in scene composition and lighting setup.

Apprenticeship

Deep Learning Systems Sep 2022

Provides overview and understanding Deep Learning approach by building from scratch a complete framework, capable of efficient GPU-based operations