Serhii Rieznik

rezniksa@gmail.com | Twitter | LinkedIn

Rendering Engineer

- solid understanding of modern rendering and ray tracing technologies;
- knowledge of most Graphic APIs;
- extensive cross-platform development experience;

Professional experience:

- **Womp, Graphics Engineer (June 2022 – present)**
  developing an 3D editor with signed distance fields and real-time path-tracing using CUDA;
- **MBition GmbH, Expert Graphics Engineer (January 2019 – June 2022)**
  developing a cross-platform rendering engine, developing custom high-performance rendering in the Unity engine;
- **Wargaming, Rendering Engineer, Lead Render Developer (June 2018 – January 2019)**
  managing team of render developers, maintaining and improving existing codebase for rendering back-ends, implementing new rendering back-ends, developing new features for rendering, writing physically based renderer;
- **Wargaming, Rendering Engineer (August 2015 – June 2018)**
  developing new tools and features for rendering, writing physically based renderer;
- **Freelance, Rendering Developer (February 2015 – August 2015)**
  developing hair physics simulation and rendering, developing rendering plug-in for Adobe After Effects, various project related to writing shaders and optimizing rendering;
- **CloudGears, Game Developer (July 2013 – January 2015)**
  developing cross-platform engine for game, full development cycle of the games using developed engine, developing 2D and 3D scenes rendering, implementing network client application;
- **TundraMobile, Game Developer, Team Lead (October 2009 – July 2013)**
  designing applications architectures, managing team of developers, having contacts with customers, developing cross-platform engine for games, developing games for iOS and Android.

Technical expertise:

- Programming languages: C, C++, Objective-C, C#;
- Graphic APIs: OpenGL, DirectX 9, DirectX 11, Vulkan, Metal;
- Ray tracing: OptiX, CUDA, Metal;
- Platforms: Windows, macOS, Linux, iOS, Android;

- IDEs and tools: Visual Studio, Xcode, NVIDIA Nsight Graphics, RenderDoc, Blender, Photoshop, Unity.

Additional experience, pet projects

- **Ray tracer**

  https://github.com/serhii-rieznik/etx-tracer

  CPU and GPU ray tracer, implementing advanced integrators (like bidirectional or Vertex Connection and Merging), medium rendering, spectral rendering, advanced materials (like thin film or multi-scattering materials).

- **Cross platform game engine:**

  https://github.com/serhii-rieznik/et-engine

  Master (stable) branch: used in shipped games and applications, cross-platform (Windows, iOS, macOS, partially Android), OpenGL (and OpenGL ES) renderer, OpenAL sound, math for 2D and 3D operations, 3D primitives generation and processing.

  Feature branches: playground for research and investigation, Vulkan and Metal renderer, physically based rendering, HDR, post-processing, compute shaders, precomputed atmospheric scattering, experiments with ray-tracing.

- **Ray-tracing projects using Metal Performance Shaders:**

  https://github.com/serhii-rieznik/metal-ray-tracer

  https://github.com/serhii-rieznik/metal-renderer

Education

National Technical University of Ukraine "Kharkiv Polytechnic Institute" (2004 – 2010), Faculty of Physical Engineering, Applied Math – Master's Degree

Publications

- **Writing ray-tracer using Metal Performance Shaders**

  https://serhii-rieznik.github.io/metal-ray-tracer/index.html

- **Screen-space ambient occlusion with one light bounce (Jan 15, 2015)**

  http://www.gamedev.ru/code/articles/ssao

- **Modeling of glass surfaces (Jul 31, 2010)**

  http://www.gamedev.ru/code/articles/Glass_modeling

- **Real time caustics (Jan 5, 2010)**

  http://www.gamedev.ru/code/articles/caustic