Eric Arnebäck – Curriculum Vitae

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Date of Birth	29 November 1993	**Website**	erkaman.github.io

About: Eric Arnebäck is a developer with a deep passion for real-time computer graphics. He spends much of his spare time working on graphics-related side projects, and studying the latest research papers about computer graphics.

Education

2012-2015 BSc in Information Technology, Chalmers University of Technology

2015-2017 MSc in Computer Science, Chalmers University of Technology

Employment History

Sep 2016 - Mar 2017 Fraunhofer-Chalmers Centre for Industrial Mathematics
Contracted Student

Worked as a contracted student a couple of days every week while studying at the university. I explored and implemented approaches to rendering particle simulations with a large number of particles at interactive frame rates. I also explored and implemented procedural generation of meshes, where the meshes are to be used in the visualization of particle simulations.

Technologies Used: GLSL, OpenGL, C++, RenderDoc.

Jun 2017 - Jun 2018 Fraunhofer-Chalmers Centre for Industrial Mathematics
Development Engineer

Responsible for developing and adding new features to the graphics engine of the software Industrial Path Solutions. I prototyped using Vulkan for rendering CAD data. I prototyped using Screen-Space Reflections for automotive rendering. Implemented a GPU-accelerated Path Tracer using OptiX, and integrated my solution into a simulations software used in the automotive industry.

Technologies Used: GLSL, OpenGL, C++, Vulkan, RenderDoc,OptiX

Skills

- Advanced knowledge of **Graphics Programming** with **OpenGL** and **WebGL**.
- Advanced knowledge of **Object-Oriented Development**, mainly using **C++** and **Java**.
- Advanced knowledge of **Mesh Processing**, having implemented techniques like **Mesh Deformation** and **Mesh Parameterization**.
- Intermediate knowledge of **Performance Optimization** using **Multithreading** and **SIMD**.
- Intermediate knowledge of **GPGPU Programming** with **CUDA** and **OpenGL**.
- Intermediate knowledge of **front-end web development** using **Javascript**, **HTML** and **CSS**.

Selected Personal Projects

My portfolio can be found on my website: erkaman.github.io. Below are some selected projects.

Master's Thesis: "Comparing a Clipmap to a Sparse Voxel Octree for Global Illumination"

I implemented **Real-time Global Illumination with Voxel Cone Tracing** using two different approaches and compared their respective merits and drawbacks. Implementing both approaches within the given time-frame was an enormous task, but thanks to my well-planned time schedule I was able to complete the project, and perform the comparison in the end.

regl

I was once a very active contributor to the **open source WebGL framework regl**. I have written many code examples for the purpose of making the framework easier to learn for beginners, reported and fixed many bugs, written unit tests, and improved the documentation.

Articles about Mathematics in Computer Graphics

I have written several articles where I explain mathematics that is useful for computer graphics. I have received a **very positive response** for these articles from the general public, and for this reason I consider them to be **clear and easy to read**. These articles can be found on my personal website.