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# Max Oomen

C++ programmer with experience in graphics and games

## Profile:

Looking for a position for further development of programming skills, personal competencies, education, and experience. Pragmatically oriented Graphics and Engine Programmer who strives for the best result, within the given time, means and resources. Is not afraid to ignore best practices when a better solution is available. Loves getting close to the hardware for maximum performance. Enjoys challenges, can put things into perspective and quickly learns new skills. Critical to quality and has a healthy dose of humor.

## Work Experience:

2018 - present	<b>Kim Systems:</b> Web & Game Developer Took a step back from low-level software and focussed more on software architecture and team management. Leading role in a team of 5 other people on developing a Content Management System (CMS) called 'Yoeston'. This system makes it possible to develop large websites in a small time frame. Other projects include: DCMR@Work, saltro.nl, marin.nl, and autoleaseman.com. <b>Go, Typescript, React, Unity3D</b>
2016 - 2018	<b>Confetti Interactive (California, USA):</b> Graphics Programmer Started as an intern, later became a full-time contractor. Projects include: StarVR, PresenZ, Dolby Vision, Pyre, Quake Champions, and internal tools. <b>C++, D3D12, D3D11, OpenGL, Playstation 4, Xbox One, Virtual Reality</b>
2012 - present	<b>Trained Cub Scout Leader</b> I volunteer and organize activities for children of ages 7 to 11 years.

## Education:

2013 - 2017	<b>Bachelor of Science (cum laude),</b> NHTV - International University of Applied Sciences, Breda, International Game Architecture and Design, Variant: Programming Relevant Modules: C++, Optimization, SIMD, CUDA, Path Tracing, Voxel Cone Tracing, Software Rasterization, GPU Programming using D3D11, D3D12, and OpenGL4, Playstation 4.
2008 - 2013	<b>Higher General Secondary Education (HAVO),</b> Mgr. Frencken College, Oosterhout Relevant Modules: Mathematics, Physics, Computer Science, English

## Skills:

Languages	Dutch - Native, English - Proficient
Programming Languages	C++, C, HLSL, GLSL, PSSL, CUDA, C#, Go, x86, ARM
Platforms	Windows, Android, PlayStation 4, Xbox One, Arduino, Linux, MacOS
Game Engines	Unity3D, Unreal Engine 4, PhyreEngine
Graphics APIs	D3D11, D3D12, OpenGL4, D3D9, Vulkan, GNM(X)
Tools	Visual Studio, vTune, µProf, RenderDoc, Git, SVN, Perforce, Photoshop, Maya

## Interesting Projects:

Tile Based Software Rasterizer (2019)	<p>Software rasterizer written in free time. Designed around a tile based rendering system, similar to mobile GPUs, to reduce needed memory bandwidth and improve multi-core utilization. Heavily optimised using SIMD and use of deep knowledge of the Zen architecture. Manages to render Crytek Sponza with lambertian diffuse shading under 8 ms at 1920x1080 on an 8-core Ryzen 7 1800X at 3.6 GHz.</p> <p><b>C++, 3D Rendering, High Performance, Low Level Optimization, SIMD</b></p>
Arduino Thermostat (2018)	<p>Thermostat that controls the temperature of a terrarium using an arduino. A temperature sensor feeds a PID controller that calculates an intensity value that is used to control the heating pad using a TRIAC. A second sensor is used to measure the ambient temperature and humidity. Data is logged for 24 hours and can be viewed on a small display. The thermostat runs 24/7 without issues.</p> <p><b>C++, Arduino, Electronics, Soldering</b></p>
Full body tracking on GearVR with Kinect (2016)	<p>Participated in the first NHTV VR Game Jam sponsored by Samsung. Worked with a team of 3 other programmers to build a VR game in 48 hours. Used a Kinect to add body and position tracking to the GearVR to greatly improve emersion. Managed win at 1st place.</p> <p><b>C++, C, GearVR, Kinect, OpenGL, Android</b></p>
D3D11 & PlayStation 4 Rendering Framework (2016)	<p>Worked on the rendering system for a custom game engine that was developed by students at the NHTV. The rendering system supports D3D11 and GNMX, and was later extended to support D3D12. It uses a stateless design and exposes concepts as command lists and pipeline state objects for new graphics API support. Additionally it uses custom memory allocators where possible for more efficient memory management.</p> <p><b>C++, D3D11, D3D12, GNMX, PlayStation 4</b></p>
Voxel Cone Tracer (2016)	<p>Implemented the algorithm described in the paper 'Interactive Indirect Illumination Using Voxel Cone Tracing' by Cyril Crassin et al. Using only the paper as source material managed to get a very slow variant running using OpenGL4. Unfortunately, not enough time was provided before it could be optimized for real-time performance.</p> <p><b>C++, OpenGL 4, Voxel Cone Tracing</b></p>
Path Tracer in CUDA (2014)	<p>Followed a course in Ray Tracing. Implemented a Path Tracer in CUDA that can render a complex scene at an interactive frame rate by leveraging the power of the GPU. The ray geometry intersection is optimized using a Bounding Volume Hierarchy (BVH). It simulates near photorealistic light transport using Monte Carlo Integration with Importance Sampling.</p> <p><b>C++, CUDA, Ray Tracing, Path Tracing</b></p>

## Spots and Hobbies:

Sports	Bouldering, Mountain Biking
Hobbies	Scouting, Dungeons & Dragons,