Xichen Zhou — Resume

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Skills

- **Computer graphics** : Vulkan, HLSL/GLSL, DirectX12, OpenGL/ES, O3DE, RenderDoc, Pix
- **Computer Vision** : OpenCV, Python, Matlab
- **Programming** : C++, C, Linux, git, Qt, JIRA, OpenCL, CUDA
- **front end** : Typescript, Hugo, SASS

Experiences

Huawei Technology Canada **Toronto, Canada**
Senior graphics engineer ***Aug 2023 – present***

- Lead in O3DE hair shading & simulation system to bring digital human production.
- Optimizing RHI/RPI code in Atom O3DE.
- Provide hands-on mentorship to junior developers through challenges, such as technical design and support on complex coding challenges. Boosted the productivity under tight deadlines.
- Design on engine architecture and API changes for enabling Multi-GPU rendering for cloud rendering.

Huawei Technology Canada **Toronto, Canada**
Rendering Researcher ***Aug 2021 – Aug 2023***

- Researched on optimizing algorithm such as Volumetric fog, spherical harmonics and SSDO for mobile rendering. leaded to 20%-40% frame rate increase.
- Researched rendering optimizations including Cloud based DDGI, adaptive shading, Ray-Tracing and SDF.
- Design and implementing rendering techniques such as AO, shadow, GodRays.
- Architect of the in-house Vulkan graphics renderer for rendering research. Developed compute based animation system, Scene Graph and Pass management and GPU-Driven pipeline.

Coohom.com **Shanghai, China**
Senior Software Developer ***Dec 2020 – Jun 2021***

- Leaded the 3D graphics team on migration of web based rendering platform from three.js into new rendering API.
- Optimized teams WebGL product for reducing model loading time and rendering time.
- Bring new features to the product such as new material rendering, anti-aliasing.

Qube 4D Ventures **Montreal, Canada**
R&D Graphics Developer ***Jul 2019 – Jun 2020***

- Designed the rendering architecture for the nuclear plant simulation system from ground up based in Vulkan APIs.
- Implemented a compute based mesh tracing system for radiation measurement for the simulator.
- Developed the in-house flight simulator engine Axion specialized for 180+ degrees FoV Rendering.
- Implemented the calibration and projection system for synchronizing multiple rendering nodes for seamless image synthesis.

INRO Software **Montreal, Canada**
Graphics Developer ***Jan 2018 – Jun 2019***

- Leaded the 3D engine development of the CityPhi product for large scale data visualization.
- Performance Analysis and Debugging of CityPhi Rendering techniques.
- Implemented rendering techniques such as HBAO, Depth-of-field and tessellation.
- Developed cost optimization feature for city planning leveraging CUDA GPGPU programming.
- R&D on a GPU based decal placement and rendering algorithm which solves the smooth transition and clipping.
- Migrated the CityPhi from Qt4 to Qt5.

Gameloft Montreal **Montreal, Canada**
R&D Developer ***Jul 2017 – Jan 2018***

- Computer vision researcher for the robotic project.
- Implemented and improved the text recognition system using tailored VGG net.

Education

Concordia University **Montreal, Canada**
Master in Computer Science ***Sep 2015 – Jul 2017***

- Graduate student with Prof. Charalambos Poullis and research assistant at The ICT lab.
- Teaching assistant for Compute Vision and Computer Graphics class.

North China University of Science and Technology **Hebei, China**
Bachelor in Computer Science ***Sep 2011 – Jul 2015***

- Research assistant at NCST's cloud computing lab.

Projects & Publications

Taiwins Wayland Compositor

Taiwins is a low level graphics software for GNU/Linux systems which manages desktop session, handles hardware events and schedules the application windows draw calls in less than 0.1ms. It is modular and extensible also has builtin shell and client libraries.

Fmo-mode

fmo-mode.el is an Emacs extension for code formatting. It only formats the code you commit which is extremely useful when dealing with large legacy code base.

Automatic 2D to Stereoscopic Video Conversion for 3D TVs

This paper originated from a research project conducted at The ICT lab during my graduate studies. It focuses on synthesizing stereoscopic views from only monocular views for using neural networks. Presented on 3DTV-CON 2017.

Data on the move and Issues of Privacy and security

It is a survey paper discussing the data security problems on recent cloud technology advancement. Presented on IDEAs 2016.