AKSHAY DHOK

San Diego, CA
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Skills

Programming Languages:	Primary: C++, C, GLSL, Python, Java Familiar: LUA, HLSL, C#
Graphics Application:	Graphics rendering techniques, Ray Tracing, Oculus SDK, VR techniques, Modern shading techniques like deferred shading, physically based lighting, ambient occlusion, shadow & reflection maps, shader programming, graphics engine development.
Graphics Performance:	Good understanding of graphics software and hardware pipeline, benchmark performance verification on RTL, Machine Learning based performance modeling, bottleneck analysis, Driver and Compiler optimization techniques, graphics benchmark analysis.
Tools:	Git, Gerrit, Perforce, Jira, Renderdoc, Nvidia Insight, Intel GPA, Qualcomm profiler, Scikit-Learn, Visual Studio.

Professional Experience

Staff Engineer at Qualcomm Inc   May 2016 – Present

My responsibilities include building models for performance evaluation of current and future generation of Qualcomm's graphics processor chips. Enabling OpenGL, DX and Vulkan benchmarks for pre-silicon environment. Perform RTL verification and feature verification across different GPU. Benchmark and Game performance analysis for architecture exploration. Worked on Adreno 630 graphics chip. Awarded with Qualstar for excellent achievements in premium tier GPU performance modeling.

DigiPen Project-Fun   Jun 2015 – Aug 2015

Assisted teachers to develop class projects for Artificial Intelligence and conducted AI workshops for Kids.

Technologist at Kratin Software Solutions   May 2012 – Jul 2014

Worked on Android Mobile Device Management solution for dual persona mobile devices.

Responsibilities included building framework, OS customization, designing systems, bug fixing, code review.

Education

BS - Information Technology Nagpur University India, 2007 - 2011
MS - Computer Science DigiPen Institute of Technology Redmond Washington USA, 2014 - 2016

Projects

Adreno GPU performance optimization (Qualcomm, San Diego CA)

As part of graphic performance team my responsibilities include working with GPU architects for providing performance analysis of new GPU architecture, building models for performance evaluation of current and future generation of Qualcomm's Graphics Processors. GPU performance optimization involving application-level optimizations opportunities, finding system level bugs and providing driver and compiler level optimization. To improve design of future generation of chips I have developed infrastructure and tools to analyze bottlenecks due to low efficiency and throughput in pre-silicon environment.

VR Graphics Engine (School Project)

Developed a game engine in C++ that can support VR rendering using Oculus SDK. Implemented deferred rendering-based graphics engine with post processing effects & game assets pipeline. Programmed shaders for cloud noise effect, lighting, edge highlights, lasers, and particles. Successfully coped with: Maintaining 90 FPS for dual screen of VR game, UI design, Simulation Sickness.