

# Trung Le

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## Skills

**Graphics:** Vulkan, WebGL, OpenGL

**Programming:** C/C++, Python, C#, Javascript

**Software:** Unity, Unreal, Houdini

## Experience

### **ML ENGINEER, GOOGLE STADIA - OCTOBER 2019 - PRESENT**

Computer graphics research.

### **AI PROGRAMMER, ROCKSTAR GAMES - JULY 2017 - PRESENT**

Analyzed and optimized performance for AI systems in Red Dead Redemption II, Rockstar's narrative-driven, open world video game with deep AI interactions. Specifically worked to improve the C++ game code for LOD management of AI physics, weapon and combat systems, transport systems, and pathfinding systems for PS4 and Xbox. Worked on general AI and animation optimization for several specific scripted in-game missions as well as miscellaneous performance bugs in the final weeks before the game release.

### **TOOLS PROGRAMMER INTERN, EPIC GAMES - JUNE 2016 - SEPTEMBER 2016**

Implemented VR editing tools for the Unreal Engine 4. The tools include terrain editing, virtual keyboards, and foliage painting for level editing. These tools are introduced in Unreal 4.13 and 4.14 releases.

### **FIRMWARE ENGINEER, JAWBONE, SEATTLE WA – 2012-2014**

Developed infrastructure and applications for the UP3 fitness wristband on ARM Cortex and iOS platforms. This includes the BTLE protocol, authentication and encryption between device and mobile app, activity classification collection tools, peripheral drivers, USB interface, and UX.

### **RESEARCH ASSISTANT, UW SENSOR LAB+INTEL LAB, SEATTLE WA – 2010-2012**

Designed a GUI with Python QT for the systems used in Wireless Resonant Energy Link (WREL) research. The software supports data collection, data visualization, wireless control, and power diagnostics. Over the years, this software has been forked and extended for use in other research and at startup company Wibotic.

## Education

**University of Pennsylvania**, PA – MSE Computer Graphics, May 2017,                      GPA: 3.71/4.0

**University of Washington**, WA – BS Electrical Engineering, June 2012,                      GPA: 3.51/4.0

## Projects

(please see more at [www.trungtuanle.com](http://www.trungtuanle.com) for a complete portfolio)

### **VULKAN HYBRID RENDERER, RENDERER - 2016**

Implemented in Vulkan a hybrid renderer that combined deferred shading for primary ray intersections and the used GPU ray tracing to render the scene. The approach allowed for shadow feelers, reflection, and refraction, on top of a rasterizer.

### **PROJECT EM, AN VOICE-CONTROL 3D PLATFORM GAME IN UNREAL WITH ALEXA – 2016**

Lead Unreal programmer. Second place of PennApps XIV. Winner of the use for Alexa. Winner of best AR/VR application.

### **CUDA RASTERIZER WITH K-BUFFER AND GLTF, COURSE PROJECT – 2016**

Programmed in C++ and CUDA. Parallelize rasterization per primitive triangle with k-buffer support for transparency.

## Invited talks

### **WebGL2 Samples Pack**

Khronos event, GDC 2016

Trung Le and Shuai Shao

### **WebGL2 Samples Pack**

NYC WebGL Meetup 2016

Trung Le and Shuai Shao