CHRISTIAN ROBLES

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OBJECTIVE

Graduate Student passionate about pushing offline rendering towards real-time seeking full-time roles and internships.

EDUCATION

Master of Computer Science, University of Southern California — Expected May 2023
Concentration in Multimedia and Creative Technologies — GPA: 3.7

Relevant Coursework: Probability, Computer Animation and Simulation, 3-D Graphics and Rendering

Bachelor of Computer Science, Arizona State University — 2013 - 2017

SKILLS

Programming Languages	C++, C#, Python, TypeScript, LaTeX, R, Go, Java
Standards and Frameworks	Unity, OpenGL, GLFW, ImGUI, Qt, CMake, CLion, Visual Studio, Open Image Denoise, MaterialX, glTF, Linux, Docker

EXPERIENCE

Autodesk, Graphics Platform Team — *San Francisco, CA (Remote)*
Software Engineer Intern — Summer 2022

- Enhanced the ASWF-backed MaterialX look-development standard with export to Khronos Group's glTF.
- Developed a test pipeline to render translations on over 350 materials of the AMD GPU Open Material set.
- Provided the translation node graph to MaterialX as an open-source contribution. (Project Details)

Microsoft, Commercial Software Engineering — *Cambridge, MA*
Software Engineer II — Jul 2017 - Jul 2021

- Worked directly with strategic partners in key industries to tackle their most significant technical challenges.
- Collaborated with Data Scientists to leverage insights by engineering analysis pipelines and platforms.

PROJECTS

RRS: Albedo to EARS. Directed Research project under the advisory of Professor Ulrich Neumann. Developing a Monte Carlo Forward Path Tracer demonstrating state-of-the-art techniques in Russian Roulette & Splitting. Exploring methods for iterative optimization of threshold parameters with respect to estimator efficiency and ground-truth approximations by Intel Open Image Denoise. (Project materials)

Grandma Green. Developing a virtual pet and farming simulation game in Unity through USC's Advanced Game Projects program. Designed and implemented performant data structures and routines for plant growth cycles, genotype expression, sprite resolution and garden serialization.

Signed Distance Fields. Led the design and development of a ray-marched SDF renderer demonstrating procedural materials, displacement surfaces, fractals and GPU acceleration with CUDA. Presented results as a final presentation and report for Professor Neumann's 3D Graphics and Rendering course. (Report and slides)

Multiple Importance Sampling. A review of Veach's thesis and exploration of fundamental techniques in Monte Carlo Integration and Multiple Importance Sampling. Implemented extensions and augmentations to the renderer described in Peter Shirley's *Ray Tracing* series to demonstrate Multiple Importance techniques. (Blog post)

PERSONAL INTERESTS

- Coffee, indoor & outdoor rock climbing, national parks, hiking.