Christian Robles
Physically Based Rendering and Real-Time Computer Graphics.
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EDUCATION

University of Southern California	Los Angeles, CA	**Graduate Coursework**
Viterbi School of Engineering	May 2023	• **Computer Graphics,** OpenGL, 2D and 3D transformations, Bezier Splines, rendering and ray tracing.
Master of Science, Computer Science	**GPA: 3.75**	
Multimedia and Creative Technologies		• **3-D Graphics and Rendering,** Transformations, shading, lighting, rasterization and texturing.
Arizona State University	Tempe, AZ	• **Analysis of Algorithms,** Fundamental techniques for efficient algorithm construction.
Ira A. Fulton Schools of Engineering	May 2017	
Bachelor of Science, Computer Science		• **Probability,** Discrete and continuous random variables, functions of random variables, Markov chains.
Concentration in Information Assurance		

TECHNICAL SKILLS

Languages: C++, Python, TypeScript/NodeJS, Java, R, Go
Tools/Standards/Patterns: MaterialX, glTF, OpenGL, Qt6, LaTeX, Pandas, Tidyverse, Containers, CI/CD, Infrastructure-as-Code

WORK EXPERIENCE

Software Engineer Intern   Summer 2022
Autodesk, Los Angeles, CA (Remote)
- Implemented translation between the Standard Surface and glTF PBR material standards in MaterialX.
- Verified translation fidelity with a batch translation pipeline of 350+ reference materials.
- Automated rendering of test scenes and assets with Autodesk Arnold and Dassault Systèmes DSPBR-PT.
- Contributed Standard Surface to glTF PBR translation nodegraph back to MaterialX as Open Source.

Software Engineer II   July 2017 – July 2021
Microsoft, Cambridge, MA
- Shipped infrastructure-as-code, CI/CD pipelines, build systems, and test infrastructure targeting the Azure Cloud.
- Worked with top partners in Financial Services to transition critical build systems and infrastructure to Azure.
- Prototyped new products and extended data platforms with Azure services alongside partners in Transportation and Energy.
- Collaborated with Microsoft and Academic Data Scientists to design and implement feature engineering pipelines in Healthcare.

Summer Technology Analyst   Summer 2016
Goldman Sachs, New York, NY
- Created data pipelines and dashboards for private cloud-based endpoints with Cloud Infrastructure team.
- Enhanced visibility on patch and security compliance for over 85K cloud-based endpoints with Elasticsearch and Kibana.

PROJECTS

Ray Marching Renderer, CSCI 580, Spring 2022
- Led a group of four in the design and implementation of a Ray-Marched Renderer that demonstrates Constructive Solid Geometry, Procedural Surfaces and Procedural Materials. Shared report as presentation and blog post.

3D Vector Graphics Rendering API, CSCI 580, Spring 2022
- Implemented a C++ API for rendering 3D vector graphics demonstrating model transformations, rasterization, hidden surface removal, lighting and shadows, textures and anti-aliasing.

Multiple Importance Sampling, Self-directed, Winter 2021
- Extended Peter Shirley's *Ray Tracing: The Rest Of Your Life* with Multiple Importance Sampling using the Balance Heuristic as described in Eric Veach's 1997 thesis. Shared implementation and discussion of techniques as a blog post.

Multimedia Style Transfer, Self-directed, Spring 2020
- Projects exploring style transfer of textures on 3D scans and viability of a real-time style transfer plugin for TouchDesigner. Presented internally at Microsoft and shared as a personal blog post.

INTERESTS AND HOBBIES

Volunteering and Education, Taught AP Computer Science A to High Schoolers via the TEALS Program with Microsoft.
Physically Based Rendering, Review academic literature and create side projects to share on my blog.
Hiking and Rock Climbing, Passionate about indoor and outdoor climbing and supporting our National and State Parks.