# RASHI SINHA

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## EDUCATION

**University of Southern California, Viterbi School of Engineering** GPA: 3.81
*Master's in Computer Science* Graduation date: May 2023
*Relevant Coursework: Computer Graphics, 3-D Graphics and Rendering, Analysis of Algorithms, Computer Animation and Simulation, Advanced Game Projects (AGP)*

**Manipal University Jaipur** CGPA: 9.26/10
*Bachelor's of Technology (B.Tech) in Computer Science* Graduation date: Jul 2018
*Relevant Coursework: Object Oriented Programming, Data Structures, Design and Analysis of Algorithms*

## SKILLS

- C++, Python, C#, HLSL, GLSL, OpenGL, USD, PyQt
- Unity, Maya, Houdini, Blender 2.8
- Perforce, Git, JIRA, Miro, Visual Studio

## EXPERIENCE

**University of Southern California,** *Part-Time Lecturer - Viterbi School of Engineering* Rigs Aug 2024-*Present*
*Courses: Technical Character Animation for Games, Character Rigging for Games, Introduction to 3D Modeling, Animation & VFX*

- Instructed game art students on building clean, production-ready, animator-friendly 3D character rigs in Maya, including complex IK/FK systems with constraints and intuitive controls.
- Led students through the full 3D content pipeline—modeling, texturing, rigging, animation, lighting, rendering, and visual effects—to produce short animations in Maya.

**Easley-Dunn Productions Inc.,** *Lead Software Engineer* Jul 2023-Jul 2024

- Led a research project to study the extraction of crucial metadata from gameplay videos using machine learning techniques in computer vision, and contributed to the implementation of feature extraction using **Python**.

**Soul Machines,** *CG Tech Art Intern* Jun 2022-Aug 2022

- Explored integrating **Universal Scene Descriptions (USD)** within the Digital People production pipeline.
- **Automated** textured USD asset creation with Python scripting to optimize workflow.
- Created a **Python** tool in **Maya** for artists to visually validate USD assets early in the pipeline.

**IQVIA,** *Associate Consultant* Feb 2018-Jul 2021

- Provided technical support to end users, mentored new resources, and conducted global training sessions.
- Designed, developed & integrated functional customizations within an established codebase aligning with client requirements.
- Collaborated on **SQL** scripts for database upgrades and business logic for data migration in a cross-functional agile team.

## PROJECTS

**Gerstner Waves Deformer** *(Personal Project)* Link **(Python, Maya Python API)**

- Developed a Maya deformer node plugin to simulate water surface waves based on Gerstner wave equations, with adjustable wave controls.

**Pose Mirroring Tool** *(Personal Project - WIP)* Link **(Python, Maya)**

- Built a Maya tool to mirror character poses across the YZ plane by inverting or swapping control transformations with support for varied rig setups, speeding up animation workflows.

**3D Rasterizer** *(3-D Graphics and Rendering - Group Project)* Link **(Python)**

- Engineered a 3D rasterizer by implementing a full rendering pipeline including linear expression evaluation, z-buffering, space transformations, Phong shading and lighting, and texture mapping.
- Worked in a team to implement wireframe and stylized rendering techniques like toon shading, line art, halftone along with ambient occlusion, shadows, and normal mapping.

**Inverse Kinematics with Skinning** *(Computer Animation and Simulation)* Link **(C++, OpenGL)**

- Developed a real-time IK system using Tikhonov Regularization for character deformation leveraging Eigen and Adol-C libraries to significantly reduce solve time. Implemented both Linear Blend and Dual Quaternion Skinning reducing visual artifacts.

**Blindsight: War of the Wardens** *(USC Games, AGP - Technical Artist)* Link **(Unity, URP Shader Graph, HLSL, C#)**

- Designed stylized shader graphs for manga-inspired environments in a 3D third-person combat game.
- Developed custom HLSL shaders for immersive echolocation-based lighting using point lights.
- Created in-game visual effects with particle systems and VFX graphs, and added directable controls using C# scripts.

## INVOLVEMENT

- Women in Animation at USC, Student Club, Lead (2022-2023)
- USC SIGGRAPH Club, Member