

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

Aug 2024-Present

Courses: Character Rigging for Games, Introduction to 3D Modeling, Animation & Visual Effects

- Taught a variety of 3D content creation topics including modeling, animation and building clean and animator-friendly character rigs in **Maya** to undergraduate students as part of both intro-level and 300-level courses.

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** the creation of textured USD assets from the existing asset database using Python scripts to optimize workflow.
- Created a **Python** tool in **Maya** to enable artists to visually validate USD assets and recognize issues earlier 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 to create **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 Deformer Node Plug-in for Maya that deforms a 3D mesh to generate waves based on the Gerstner waves equation.
- The tool supports three waves with controls for their attributes including a movement factor to simulate water surface flow.

Tween Machine Tool (Personal Project) [Link](#)

(Python, Maya Python API, PyQt)

- Recreated the tween machine tool as a Maya Command Plugin to set a keyframe at the current time by interpolating the values of the previous and next keyframes for the selected scene objects or animation curves.
- Integrated an interactive user interface with the tool to allow users to choose a weight value for interpolation.

3D Rasterizer (3-D Graphics and Rendering - Group Project) [Link](#)

(Python)

- Engineered a 3D rasterizer with linear expression evaluation, z-buffering, space transformations, Phong shading and lighting, and texture mapping to render 3D scenes.
- Worked in a team to implement wireframe and stylized rendering approaches 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 an Inverse Kinematics system, implementing the Tikhonov Regularization method for character deformation utilizing Eigen and Adol-C libraries for linear algebra.
- Implemented Linear Blend Skinning and Dual Quaternion Skinning based on the input skinning weights.

Procedural Foliage Generation Tool (Personal Project) [Link](#)

(Houdini, VEX)

- Designed a custom foliage generation tool in Houdini, by leveraging skills from a dedicated course, to generate vegetation with intuitive art directable controls on the HDA user interface. Integrated additional leaf designs to broaden asset variations.

INVOLVEMENT

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