RUSHIL KEKRE

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WORK EXPERIENCE

Software Engineer, 3D Rendering April 2018 – Present
HERE Technologies Carlsbad, CA

- Developed 3D navigation assistance features for the HERE 3D map rendering engine
- Reduced technical debt in several legacy APIs
- Implemented legacy features to meet design requirements of modern stack
- Synthesized customer code on hardware for end to end testing

FX Intern January 2017 – May 2017
SideFX Software Santa Monica, CA

- Led FX development for an animated short movie including visual development, pipeline integration, and tool development
- Developed and maintained character simulation tools using VEX and Python in Houdini

FX Intern June 2016 – August 2016
Framestore New York, NY

- Developed procedural modeling tools used during production based on artist requirements
- Development of a reusable particle simulation tool using VEX in Houdini
- Pipeline tool integration and maintenance using C++ and Python

EDUCATION

MS – Visualization (Computer Graphics) 2014 – 2017
Texas A&M University College Station, TX

BE – Computer Science 2009 – 2013
PES Institute of Technology Bangalore, India

ACADEMIC EXPERIENCE

Master's Thesis on Controllable Phase Change in Fluids

- Research of various art-directable fluid simulation techniques
- Development of a reusable tool to generate a controllable melting simulation using Houdini

OpenGL Render Engine – A real time rendering engine using C++, OpenGL, GLSL and ImGUI.

- Features include PBR texturing using albedo, normal, roughness, metallic and AO maps
- Image based lighting using HDR maps
- Deferred rendering using G-Buffer, SSAO
- Model loading, model transformation, point and directional lighting, skybox integration

Path Tracer – Developed using C++

- Includes glossy reflections, refractions, materials
- Light sources, soft shadows, etc.

Flocking Simulation – Developed using Processing

- Based on Craig Reynold's '87 SIGGRAPH paper: Flocks, Herds, and Schools: A Distributed Behavioral Model
- Includes collision detection, flock centering, velocity matching, multiple independent flocks

Digital Image Processing – Developed using C++

- Implemented smart blur, dilation, erosion, emboss filters
- Translation, rotation, scaling, shear, perspective and mirror features

Graduate Research Assistant on an NSF funded Augmented Reality project based on eye tracking

- Analyzed research papers for label placement in a 2D scene based on object location
- Implemented solutions in Matlab and tested on Unity game engine

Graduate Teaching Assistant for Computing for Visualization 1

- Taught C++ and OpenGL for a sophomore-level graphics programming class

SKILLS

C++, OpenGL, GLSL, Houdini, Maya, Python, VEX, Linear algebra