RUSHIL KEKRE

Graphics Software Engineer

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WORK EXPERIENCE

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

- Developed navigation assistance features to display highway entry and exit junctions for HERE's modern 3D map rendering engine
- Improved visual fidelity of route displayed for navigation in HERE's internal 3D world building tool by analyzing real world road data
- Reduced texture memory consumption and improved text rendering performance by implementing a signed distance field approach
- Performed technical research and implemented rendering effects like gamma correction and depth of field as part of the post-processing pipeline
- Reduced technical debt in several internal tool APIs

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

- Led FX development for an animated short movie including visual development 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 tool to simulate snowfall using VEX in Houdini
- Pipeline tool integration and maintenance using C++ and Python

EDUCATION

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

Bachelor of Engineering – 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 procedural 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 on flocking simulations
- Includes collision detection, flock centering, velocity matching, multiple independent flocks

Graduate Assistant in teaching and research positions

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

SKILLS

C++, OpenGL, GLSL, CMake, Qt, Python, Linear algebra, Houdini, Maya, VEX, Photoshop, After Effects