

ROHAN SAWHNEY

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EDUCATION

Carnegie Mellon University

PhD, Computer Graphics
Advisor: Keenan Crane

August 2016 - Present

Columbia University

B.A., Physics and Computer Science

August 2011 - May 2015

INTERESTS

Geometry Processing, Physics Based Simulation, Numerical Methods, Virtual and Augmented Reality

PUBLICATIONS

Boundary First Flattening *(in submission 2017)*

With Keenan Crane

RESEARCH PROJECTS

Medial Axis Transform

Advisors: Keenan Crane and Michael Reed

September 2014 - June 2015

- Devised and implemented a fast sampling based algorithm and surface reconstruction strategy to compute the medial axis transform for 2D and 3D models.

Shape Entanglement

Advisor: Eitan Grinspun

January - June 2015

- Integrated continuous time collision detection in a simulation engine designed to arrive at an empirical understanding of shape entanglement due to friction. The integration enabled accurate simulation of experimental setups with tightly packed polylines.

0.1 Hz Hemodynamic Oscillations in Human Cortex

Advisor: Elizabeth Hillman

January - August 2013

- Assisted with research in isolating the 0.1 Hz hemodynamic oscillation in patients with brain tumors by implementing spectral and data analysis techniques to filter noisy fMRI scans of human cortices.

WORK EXPERIENCE

IrisVR, Inc.

Graphics Engineer

June 2015 - July 2016

- Deigned a pipeline to extract and optimize mesh and texture information from 3D CAD and BIM applications such as Sketchup, Fbx, Revit and Rhino for realtime VR walkthroughs in [IrisVR Prospect](#).
- Developed algorithms for mesh repair, segmentation, instancing, simplification, remeshing, smoothing, zfighting resolution, occlusion culling and texture compression within the pipeline.
- Multithreaded the pipeline for improved performance.
- Devised an efficient, extensible and interoperable file format with ASCII and binary representations to store, transfer and load 3D CAD and BIM information within Prospect.
- Actively participated and contributed in product roadmap and visioning sessions.

Dreamworks Animation SKG

R&D Render Intern

June - August 2014

- Restructured the server client model of the Moonlight Renderer and Torch Lighting application. This enabled multiple Torch clients to render large scenes on the main Dreamworks campus by connecting to a persistent Moonlight server.
- Developed a Lua based programming interface for the Moonlight Renderer to enable the Torch developer team to quickly generate scenes for feature testing purposes.

TECHNICAL SKILLS

Languages: C/C++, Python, Javascript, Julia

Frameworks: Eigen, SuiteSparse, Boost, OpenGL, Tensorflow, OpenMP, Latex