

Zhenglin Geng

Apt. 803, Quillen, 737 Campus Drive
Stanford, CA, 94305

Mobile: 6505214638
Email: zhenglin@stanford.edu

Education

PhD Student in Computer Science, Stanford

Sep 2016 - Present

Advisor: **Ron Fedkiw**

Fellowship: VMWare (2018-2019)

Projects

Coercing Machine Learning to Output Physically Accurate Results

- We enforced the network to output physically accurate results using two types of physical processes: convex optimization (second order cone program) and full quasistatics in a fully end-to-end differentiable manner.
- Our paper is released on arXiv.

3D Guided Fine-Grained Face Manipulation (at Snapchat Research)

- We developed a facial expression manipulation algorithm using generative adversarial networks. Our synthesized images fooled users 53% of the times according to an user study.
- Our paper *3D Guided Fine-Grained Face Manipulation* was accepted at *CVPR 2019*

Anatomical Face Modeling (at Epic Games)

- We developed an anatomical simulation model using bones and muscles for better facial animation.

Data-Driven Clothing

- We developed a pixel-based framework for cloth generation given body poses. This framework allowed the use of vastly available CNNs for fast and accurate prediction.
- Our paper *A Pixel-Based Framework for Data-Driven Clothing* is released on arXiv.

Inequality Cloth

- We formulated cloth simulation as a numerical optimization problem subject to inequality constraints to avoid the “locking” problem.
- Our paper *Inequality Cloth* was published on *SCA 2017*.

Bronchoscopy Robot Simulator (at Intuitive Surgical)

- We developed a rigid body simulator modeling the flexible bronchoscopy robot interacting with the deformable airway environment.

Miscellaneous

Research Interests

- Vision, physics simulation and graphics

Thesis Direction

- Incorporating physics into machine learning networks

Teaching

- Fall 2017-2018, course assistant, CS148 Introduction to Computer Graphics and Imaging
- Winter 2017-2018, course assistant, CS248 Interactive Computer Graphics
- Summer 2018-2019, course assistant, CS229 Machine Learning