

## Education

### University of California, San Diego

Doctoral, Electrical and Computer Engineering  
Thesis Topic: Video Stabilization with Deep Learning

09/2014-Present

La Jolla, CA

### Washington State University

Master, Electrical Engineering  
Thesis Topic: Signal Processing of Magnetic Recording

09/2011-12/2013

Pullman, WA

### Southeast University

Bachelor, Electrical Engineering

09/2007- 06/2011

China

## Work Experience

### Apple Inc.

Intern with Touch Hardware Team  
Responsibility: Research and prototyping with 3D reconstruction related projects

06/2016-09/2016

Cupertino, CA

## Selected Projects

### Real-time Learning-based Video Stabilization

Design neural networks and pipelines for video stabilization purpose, aiming at a practical (in both quality and speed) video stabilization system for videos in-the-wild.

2017-Present

### 3D Face Reconstruction

Reconstruct 3D face geometry and spherical harmonic lighting with single image using shape-from-shading and auxiliary expression enhanced 3DMM face model.

The model is also used in the selfie video stabilization project.

2016-2017

### Sparse Reconstruction of BRDF

Develop sparse reconstruction algorithm for homogeneous BRDF and spatially varying BRDF, using very few samples captured from optimized sampling directions.

2015-2016

## Knowledge and Skills

**Language:** C++, Python, Matlab

**Software:** PyTorch, OpenCV, OpenGL, PBRT, Eigen, CVX, LaTeX

**Device:** Kinect, light field camera

### Knowledge:

*Computer Vision* - deep learning, video stabilization, optical flow, semantic segmentation, image feature detection and tracking, face detection, 3D face reconstruction, pinhole camera model, HDR imaging, wavelet analysis, traditional image manipulation (linear transformation, warping, edge detection etc.)

*Computer Graphics* - programmable shader, image-based rendering, ray tracing, path tracing, appearance modeling and BRDF

## Publications

**J. Yu** and R. Ramamoorthi, "Learning Video Stabilization Using Optical Flow", in CVPR 2020

**J. Yu** and R. Ramamoorthi, "Robust Video Stabilization by Optimization in CNN Weight Space", in CVPR 2019

**J. Yu** and R. Ramamoorthi, "Selfie Video Stabilization", in TPAMI 2019

**J. Yu** and R. Ramamoorthi, "Selfie Video Stabilization", in ECCV 2018

Z. Xu, J. B. Nielsen, **J. Yu**, H. W. Jensen and R. Ramamoorthi, "Minimal BRDF Sampling for Two-Shot Near-Field Reflectance Acquisition", in SIGGRAPH Asia 2016

**J. Yu**, Z. Xu, M. Mannino, H. W. Jensen and R. Ramamoorthi, "Sparse Sampling for Image-Based SVBRDF Acquisition", in Workshop on Material Appearance Modeling(MAM), EGSR 2016

M. Carosino, **J. Yu**, Y. Chen, M. Mehrnoush, B. J. Belzer, K. Sivakumar, R. Wood, J. Murray and P. Wettin, "Iterative Detection and Decoding for TDMR with 2D Inter-symbol Interference Using the Four-Rectangular-Grain Model," IEEE Transactions on Magnetics, Vol. 51, Issue. 7, July 2015