Peter Cheng

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Selected Work Experience

Matterport: Staff Computer Vision Engineer (2015 - current)

- Parallax-tolerant image stitching enabling smartphone-based 3d capture
- Neural network and infrastructure work on monocular depth prediction
- Spherical and spatially-varying color processing (e.g. hdr tonemapping, color constancy)
- Poisson, mesh-based, and TSDF voxel-based approaches for surface reconstruction and meshing
- Sensor and lens modeling, calibration, and live correction for RGB and active depth systems
- GPU-optimized color and depth capture and processing algorithms
- Systems-level design for Pro 1 and Pro 2, including camera, wifi, gps, etc.

Amazon Lab126: Emerging Technologies Team (2013 - 2014)

- Machine learning models for motion gesture recognition on the Fire phone
- Frameworks for quantifying accuracy and usability of 3d and gesture-based interfaces
- 11 patents filed for machine learning and user interaction concepts

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Education

M.S. Computer Science, UC Berkeley (2012 - 2013)

- GPA 3.889, High Honors

Management of Technology Certificate, Haas School of Business (2012)

- 1 year of MBA coursework alongside entrepreneurship projects

B.S. Electrical Engineering and Computer Science, UC Berkeley (2009 - 2012)

- GPA 3.835, High Honors

Academic Research

Video and Image Processing Lab: Dr. Avideh Zakhor (2011 - 2013)

- Generated textured meshes of building interiors using backpack-mounted cameras and lidar
- Trained machine-learning models on generated assets for energy modeling and prediction

Vision Sciences Lab: Dr. Christine Wildsoet (2011)

- Analyzed data from eye-tracking devices to study effect of sunlight on myopia

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Publications

Journal of Selected Topics in Signal Processing (2014)

- Fast, Automated, Scalable Generation of Textured 3D Models of Indoor Environments

SPIE Computational Imaging (2013)

- Texture mapping 3D models of indoor environments with noisy camera poses

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Technical Skills

- Languages: (Proficient) C++, Python, (Familiar) Java, Matlab
- Libraries: OpenCV, OpenCL, Ceres, OpenNI, Video4Linux2, Keras