

# TING-CHUN WANG

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## RESEARCH INTERESTS

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Computer vision, computational photography, machine learning, computer graphics

## EDUCATION

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**PhD, Department of EECS, University of California, Berkeley** Aug. 2013 – May 2017

Advisors: Ravi Ramamoorthi and Alexei Efros

- The Berkeley Fellowship for Graduate Study: offered to only top 4 percent of admitted PhD students.
- GPA: Major 4.0/4.0, Overall 3.97/4.0.

**BS, College of EECS, National Taiwan University (NTU)** Sep. 2008 – Jun. 2012

- Overall Ranking: 1/226.
- GPA: Major 4.0/4.0, Overall 3.98/4.0, Last 60 4.0/4.0.

## RESEARCH EXPERIENCES

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**Learning-based Video Interpolation for Light-field Cameras** Sep. 2016 – Jan. 2017

- Combined a low fps light-field camera and a high fps normal camera to generate a high fps light-field video.
- Proposed a neural network system to propagate the angular information from light field frames to 2D frames.

**Learning-based View Synthesis for Light-field Cameras** Mar. 2016 – May 2016

- Developed a learning-based approach to synthesize novel views from a sparse set of input views.
- Utilized two sequential convolutional neural networks to perform depth and color estimations respectively.

**Deep Material Recognition with Light-field Images** Dec. 2015 – Mar. 2016

- Experimented with several convolutional neural network architectures on light-field images to classify different material types, thus achieving better accuracies than using 2D images alone.

**Joint Shape and Reflectance Estimation with Light-field Cameras** May 2015 – Nov. 2015

- Extended conventional optical flow to the case of glossy surfaces to estimate depth using camera motions, then recovered BRDFs using the obtained depth.

**Occlusion-aware Depth Estimation with Light-field Cameras** Feb. 2015 – Apr. 2015

- Proposed an occlusion-aware depth estimation algorithm by predicting occlusion edge orientation in the angular domain.
- Derived an occlusion detection scheme by combining correspondence and refocus cues.

## INTERN PROJECT EXPERIENCES

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**Synthetic Scene Viewer using Deep Rendering** *Adobe Research* May 2016 – Aug. 2016

- Developed an interactive platform to view a scene where users can change the viewpoints and swap the colors/textures, using neural networks to predict the global illumination effects.

**Depth Estimation in Semi-calibrated Multi-camera System** *Nokia Research* Jun. 2014 – Oct. 2014

- In a camera system where only part of it is calibrated, proposed a unified method to do uncalibrated rectification.
- Designed a single image depth from defocus (DFD) method to sharpen the obtained disparity map.

## SKILLS

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C/C++, Matlab, Python, Java, OpenCV, OpenGL, JavaScript, Android, Verilog

## SELECTED PUBLICATIONS

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- [1] **Ting-Chun Wang**, Jun-Yan Zhu, Nima Khademi Kalantari, Alexei Efros, and Ravi Ramamoorthi, “Light Field Video Capture Using a Learning-Based Hybrid Imaging System,” *conditionally accepted by SIGGRAPH*, 2017.
- [2] **Ting-Chun Wang**, Jun-Yan Zhu, Ebi Hiroaki, Manmohan Chandraker, Alexei Efros, and Ravi Ramamoorthi, “A 4D Light-Field Dataset and CNN Architectures for Material Recognition,” *in Proc. of ECCV*, 2016.
- [3] **Ting-Chun Wang**, Manmohan Chandraker, Alexei Efros, and Ravi Ramamoorthi, “SVBRDF-Invariant shape and reflectance estimation from light-field cameras,” *in Proc. of CVPR*, 2016.
- [4] **Ting-Chun Wang**, Manohar Srikanth, and Ravi Ramamoorthi, “Depth from semi-calibrated stereo and defocus,” *in Proc. of CVPR*, 2016
- [5] **Ting-Chun Wang**, Alexei Efros, and Ravi Ramamoorthi, “Occlusion-aware depth estimation using light-field cameras,” *in Proc. of ICCV*, 2015.