

# Po-Chen Wu

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## RESEARCH INTERESTS

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- Computer Vision, Augmented Reality, and Simultaneous Localization and Mapping

## EDUCATION

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<b>National Taiwan University (NTU), Taiwan</b> <i>Ph.D. Candidate in Electronics Engineering (GPA: 4.3/4.3)</i>	09/2011–Present
<b>National Taiwan University (NTU), Taiwan</b> <i>M.S. in Electronics Engineering (GPA: 4.3/4.3)</i>	09/2010–06/2011
<b>National Taiwan University (NTU), Taiwan</b> <i>B.S. in Electrical Engineering (GPA: 3.78/4.0)</i>	09/2006–06/2010

## PUBLICATIONS

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- Po-Chen Wu, Robert Wang, Kenrick Kin, Christopher Twigg, Shangchen Han, Ming-Hsuan Yang, and Shao-Yi Chien, “**DodecaPen: Accurate 6DoF Tracking of a Passive Stylus,**” *ACM UIST*, 2017
- Po-Chen Wu, Yueh-Ying Lee\*, Hung-Yu Tseng\*, Hsuan-I Ho\* (\* indicates equal contribution), Ming-Hsuan Yang, and Shao-Yi Chien, “**A Benchmark Dataset for 6DoF Object Pose Tracking,**” *IEEE ISMAR Adjunct*, 2017
- Hung-Yu Tseng, Po-Chen Wu, Ming-Hsuan Yang, and Shao-Yi Chien, “**D-PET: A Direct 6 DoF Pose Estimation and Tracking System on Graphics Processing Units,**” *IEEE ISCAS*, 2017
- Hung-Yu Tseng\*, Po-Chen Wu\* (\* indicates equal contribution), Ming-Hsuan Yang, and Shao-Yi Chien, “**Direct 3D Pose Estimation of a Planar Target,**” *IEEE WACV*, 2016
- Bo-Chun Chen, Po-Chen Wu, and Shao-Yi Chien, “**Real-time Eye Localization, Blink Detection, and Gaze Estimation System without Infrared Illumination,**” *IEEE ICIP*, 2015
- Po-Chen Wu, Yao-Hung Tsai, and Shao-Yi Chien, “**Stable Pose Tracking from a Planar Target with an Analytical Motion Model in Real-time Applications,**” *IEEE MMSP*, 2014
- Jui-Hsin Lai, Chieh-Li Chen, Po-Chen Wu, Chieh-Chi Kao, and Shao-Yi Chien, “**Tennis Real Play,**” *IEEE Transaction on Multimedia*, 2012
- Po-Chen Wu, Jui-Hsin Lai, Ja-Ling Wu, and Shao-Yi Chien, “**Stable Pose Estimation with a Motion Model in Real-Time Application,**” *IEEE ICME*, 2012
- Jui-Hsin Lai, Chieh-Li Chen, Po-Chen Wu, Chieh-Chi Kao, and Shao-Yi Chien, “**Tennis Real Play: an Interactive Tennis Game with Models from Real Videos,**” *ACM MM*, 2011
- Jui-Hsin Lai, Po-Chen Wu, Chieh-Li Chen, Chieh-Chi Kao, and Shao-Yi Chien, “**Tennis Real Play,**” *IEEE ICCE*, 2011

## TECHNICAL SKILLS

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- Programming: MATLAB, C/C++, OpenCV, CUDA, OpenGL, Verilog
- Tools: Linux OS, Git, Altera Quartus II, NC-Verilog, Verdi, Design Compiler, SoC encounter

## RESEARCH EXPERIENCE

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**Fast, Robust, and Accurate Object Pose Estimation and Tracking in Augmented Reality Applications**, NTU 03/2011–Present

*Advised by Prof. Shao-Yi Chien and Prof. Ming-Hsuan Yang*

- Design a benchmark database for evaluating the performances of 3D pose estimation methods
- Direct 3D pose estimation algorithm for planar targets

**Real-time Simultaneous Localization and Mapping System**, Hanyang University, Korea 07/2015–11/2015

*Advised by Prof. Jongwoo Lim*

- SO3, SE3, and Sim3 camera pose estimation
- Optimization for pose estimation, bundle adjustment, and pose graph (loop closing) with using Ceres Solver and g2o

**Tennis Real Play**, NTU 09/2008–06/2011

*Advised by Prof. Shao-Yi Chien*

- An interactive tennis game system constructed with models extracted from videos of real matches

## TEACHING EXPERIENCE

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- **Digital Signal Processing in VLSI Design**, NTU. (09/2012–Present)
- **Electrical Engineering Lab (Digital Circuit)**, Lecturer, NTU. (09/2013–08/2015)
- **Multimedia System-on-Chip Design**, NTU. (02/2012–06/2014)
- **Digital Video Technology**, NTU. (09/2011–01/2014)

## INDUSTRY EXPERIENCE

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**Algorithm Design for Virtual/Augmented Reality System** 06/2016–Present

*Oculus Research, Facebook Inc., Redmond, Washington, U.S.*

- Six D.o.F object pose detection and tracking

## HONERS

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- **Third Prize Award**, Integrated Circuit Design Contest, Ministry of Education, Taiwan, 2013
- **Design Completion Award**, Integrated Circuit Design Contest, Ministry of Education, Taiwan, 2012
- **Outstanding Award**, Outstanding performance in research and contest, NTU, 2011
- **Gold Prize Award**, Gold Silicon Awards, MXIC, Taiwan, 2010

## REFERENCE

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- Shao-Yi Chien  
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- Ming-Hsuan Yang  
Associate Professor  
University of California, Merced  
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