

# Po-Chen Wu

---

BL421, No. 1, Sec. 4, Roosevelt Road, Taipei, Taiwan 10617  
Website: <http://media.ee.ntu.edu.tw/personal/pcwu/>

Phone: (+886)-912-255-685  
E-mail: pcwu@media.ee.ntu.edu.tw

## RESEARCH INTERESTS

---

- Computer Vision, Augmented Reality, and Human-Computer Interaction

## EDUCATION

---

- National Taiwan University (NTU), Taiwan** 09/2011–05/2018  
*Ph.D. Candidate in Electronics Engineering (GPA: 4.3/4.3)*
- National Taiwan University (NTU), Taiwan** 09/2010–06/2011  
*M.S. in Electronics Engineering (GPA: 4.3/4.3)*
- National Taiwan University (NTU), Taiwan** 09/2006–06/2010  
*B.S. in Electrical Engineering (GPA: 3.78/4.0; Last 2 years GPA: 4.0/4.0)*

## PUBLICATIONS

---

- Po-Chen Wu<sup>\*</sup>, Hung-Yu Tseng<sup>\*</sup> (\* indicates equal contribution), Ming-Hsuan Yang, and Shao-Yi Chien, “**Direct Pose Estimation for Planar Targets**,” *CVIU*, 2018
- 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<sup>\*</sup>, Hung-Yu Tseng<sup>\*</sup>, Hsuan-I Ho<sup>\*</sup> (\* 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<sup>\*</sup>, Po-Chen Wu<sup>\*</sup> (\* 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

---

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

## RESEARCH EXPERIENCE

---

**Fast, Robust, and Accurate Object Pose Estimation and Tracking in Augmented Reality Applications, NTU** 03/2011–05/2018

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

- Design a benchmark database for evaluating the performances of 6DoF pose estimation methods
- Develop a direct 6DoF pose estimation algorithm for planar objects

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

*Advised by Prof. Jongwoo Lim*

- Implemented SO3, SE3, and Sim3 camera pose estimation methods
- Implemented the 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*

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

## INDUSTRY EXPERIENCE

---

**Algorithm Design for Virtual/Augmented Reality System** 06/2016–08/2016

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

- Designed an accurate 6DoF tracking system for a passive stylus

## TEACHING EXPERIENCE

---

- **Electrical Engineering Lab (Digital Circuit)**, Lecturer, NTU. (09/2013–08/2015)
- **Digital Signal Processing in VLSI Design**, NTU. (09/2012–01/2017)
- **Multimedia System-on-Chip Design**, NTU. (02/2012–06/2014)
- **Digital Video Technology**, NTU. (09/2011–01/2014)

## HONERS

---

- **Best Ph.D. Dissertation Award**, Chinese Image Processing and Pattern Recognition Society, 2018
- **Honorary Member**, The Phi Tau Phi Scholastic Honor Society, Taiwan, 2018
- **Honorable Mention Award**, DodecaPen, ACM UIST, 2017
- **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

---

• Shao-Yi Chien  
Professor  
National Taiwan University, Taipei, Taiwan  
sychien@ntu.edu.tw

• Ming-Hsuan Yang  
Professor  
University of California, Merced, USA  
mhyang@ucmerced.edu