

Po-Chen Wu

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RESEARCH INTERESTS

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

EDUCATION

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

PUBLICATIONS

- Po-Chen Wu^{*}, Hung-Yu Tseng^{*} (^{*} indicates equal contribution), Ming-Hsuan Yang, and Shao-Yi Chien, “**Direct Pose Estimation for Planar Targets**,” *Submitted to CVIU*, 2017
- 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

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

RESEARCH EXPERIENCE

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 6DoF 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

- **Digital Signal Processing in VLSI Design**, NTU. (09/2012–01/2017)
- **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

Algorithm Design for Virtual/Augmented Reality System 06/2016–10/2017

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

- DodecaPen: Accurate 6DoF Tracking of a Passive Stylus

HONERS

- **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
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- Ming-Hsuan Yang
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