

# Chun-Hao Paul Huang

## Contact Information:

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Email: [huangc@in.tum.de](mailto:huangc@in.tum.de); [paulchhuang1109@gmail.com](mailto:paulchhuang1109@gmail.com)

Phone: +49 89 289 19441

Webpage: <http://campar.in.tum.de/Main/ChunHaoHuang>

## Research Interests:

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human motion and shape tracking, 3D computer vision and machine learning related problems

## Education:

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[Technische Universität München](#) (TUM), Munich, Germany *Oct. 2012 – Dec. 2016*

**Dr. rer. nat. (Ph.D.)**, Fakultät für Informatik, summa cum laude (highest distinction)

Dissertation: Tracking-by-detection of 3D human shapes in multi-camera environments

Advisor: PD Dr. Slobodan Ilic, Dr. Edmond Boyer, and Prof. Dr. Nassir Navab

[National Cheng Kung University](#) (NCKU), Tainan, Taiwan *Sept. 2008 – Jun. 2010*

**Master of Science**, Institute of Computer and Communication Engineering,

Thesis: Depth map interpolation from existing pairs of key-frames for 3D video generation

Advisor: Prof. Dr. Jar-Ferr Yang Overall GPA: 4.0/4.0, 21 credits

**Bachelor of Science**, Department of Electrical Engineering, *Sept. 2004 – Jun. 2008*

Overall GPA: 3.75/4.0, 164 credits Last 60 GPA: 3.87/4.0, 71 credits

## Work and Teaching Experiences:

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**Research Intern**, Disney Research Zurich *July. 2016 – Sept. 2016*

- Developed computer vision algorithm to detect structure of interest in RGB images using machine learning techniques.

**Research Intern**, Microsoft Research Redmond *July. 2015 – Sept. 2015*

- Developed computer vision algorithm with multiple RGBD sensors.

**Teaching Assistant**, Technische Universität München *Oct. 2012 – March 2014*

- Assisted lecture [Tracking and Detection in Computer Vision](#).
- Corrected exams and guided students' exercises.

**Research Assistant**, Academia Sinica, Taiwan *Sept. 2011 – Jul. 2012*

- Proposed a CCA-based transfer learning framework on cross-view action recognition.
- Assisted research scientists in developing a well-designed machine learning algorithm.

**Signaler**, West Kinmen Garrison, Taiwan Republic of China Army *Sept. 2010 – Aug. 2011*

**Administrative Assistant**, Office of International Affairs, NCKU *Aug. 2009 – Aug. 2010*

## Research Experiences and Associated Publications:

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**3D Human shape tracking:** advanced techniques in marker-less 3D human motion capture (mocap.) *Sept.2012*  
and shape estimation under the guidance of PD Dr. Slobodan Ilic, Prof. Dr. Federico Tombari, Dr. *-Dec.2016*  
Edmond Boyer and Prof. Nassir Navab.

1. **C. H. Huang**, B. Allain, J.-S. Franco, N. Navab, S. Ilic, and E. Boyer, "Volumetric 3D Tracking by Detection," *CVPR*, 2016 (spotlight oral, equal contribution with the second author)
2. **C. H. Huang**, C. Cagniard, E. Boyer, and S. Ilic, "A Bayesian Approach to Multi-view 4D Modelling," *IJCV*, 2016 (equal contribution with the second author).
3. **C. H. Huang**, F. Tombari, N. Navab, "Repeatable Local Coordinate Frame for 3D Human Motion Tracking: from Rigid to Non-Rigid," *3D Vision conference*, 2015.
4. **C. H. Huang**, E. Boyer, B. do Canto Angonese, N. Navab, and S. Ilic, "Toward User-specific Tracking by Detection of Human Shapes in Multi-Camera," *CVPR*, 2015.
5. **C. H. Huang**, E. Boyer, N. Navab, and S. Ilic, "Human Body Shape and Pose Tracking using Keyframes," *CVPR*, 2014.
6. **C. H. Huang**, E. Boyer, and S. Ilic, "Robust Human Body Shape and Pose Tracking," *3D Vision (former Joint 3DIM/3DPVT) conference*, 2013. (Awarded as [best paper award runner up](#))

**Transfer learning:** proposed a CCA-based domain adaptation framework to solve cross-camera action recognition and cross-modal classification under the guidance of Dr. Yu-Chiang Frank Wang. *Sept.2011*  
*- Jul.2012*

1. Y. R. Yeh, **C. H. Huang**, and Y. C. Wang, "Heterogeneous Domain Adaptation and Classification by Exploiting the Correlation Subspace," *IEEE TIP*, vol. 23, no. 5, pp. 2009-2018, May. 2014.
2. **C. H. Huang**, Y. R. Yeh, and Y. C. Wang, "Recognizing Actions across Cameras by Exploring the Correlated Subspace," *ECCV 2012 the 4<sup>th</sup> VECTaR workshop*, 2012.

**Depth map interpolation:** developed a fast and fully automatic depth propagation algorithm for a sequence under the direction of Professor Jar-Ferr Yang. *Sept.2008*  
*- Aug.2010*

1. H. M. Wang, **C. H. Huang** and J. F. Yang, "Block-based Depth Maps Interpolation for Efficient Multi-view Content Generation," *IEEE TCSVT*, vol. 21, no. 12, pp. 1847-1858, Dec. 2011.
2. H. M. Wang, **C. H. Huang** and J. F. Yang, "Depth Maps Interpolation From Existing Pairs of Keyframes and Depth Maps for 3D Video Generation," *IEEE ISCAS*, pp. 3248-3251, May 2010.

## Awards and Honors:

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**Scholarship**, Technische Universität München. *2014 – 2016*

**Best paper award runner up**, International Conference on 3D Vision, 2013. *2013*

Government Scholarship for Study Abroad, Ministry of Education, Taiwan R.O.C. *2011*

Scholarship, Li, Ke-Yang Professor. *2010*

Scholarship, GARMIN corporation. *2009*

Fellowship, Institute of Computer and Communication Engineering, NCKU. *2008*

**1st rank** in pre-master program, Institute of Computer and Communication Engineering, NCKU *2007*

## Software and Programming skills:

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**High-level Language:** C/C++, Open GL, Open CV, Python, CUDA

**Integrated Development Environment:** Visual Studio, MATLAB, Keil C

**3D Graphic tools:** MeshLab, Blender

## Patents:

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1. J. H. Yang, H. M. Wang, and **C. H. Huang**, “Image Refinement Apparatus and Image Refinement Method,” *Taiwan Patent No.I495354*. *Aug.2015*
2. J. H. Yang, J. J. Fang, **C. H. Huang**, and T. H. Kuo, “Sports Implement for Using in a Virtual Sports System,” *Taiwan Patent No.2010/16270*. *May.2010*

## Languages:

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Native in Chinese (Mandarin), Taiwanese

Fluent in English

Studying German and Japanese