

# Kai Han

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## CONTACT INFORMATION

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## RESEARCH INTERESTS

3D Computer Vision, Semantic Matching, Deep Learning in Computer Vision

## EDUCATION

### The University of Hong Kong (HKU)

Ph.D. Candidate, *Computer Science*

**Apr 2014 - Mar 2018**

- Advisor: Prof. Kenneth K. Y. Wong

### Harbin Institute of Technology (HIT)

M.Eng., *Computer Science*

**Sept 2011 - Dec 2013**

- exempted from entrance examinations
- Thesis Title: Non-contact Eye Gaze Tracking Technology Based on Cornea Reflection
- *Excellent Thesis Award*

### Harbin Engineering University (HEU)

B.Eng., *Software Engineering*

**Sept 2007 - Jun 2011**

- Thesis Title: Design and Implementation of a Gaze Tracking System
- *Excellent Thesis Award*

## PUBLICATIONS

[Peer-reviewed Papers]

1. **Kai Han**, Kwan-Yee K. Wong, Miaomiao Liu, *Dense Reconstruction of Transparent Objects by Altering Incident Light Paths*, International Journal of Computer Vision (**IJCV**), 2017. (to appear)
2. **Kai Han**, Rafael S. Rezende, Bumsub Ham, Kwan-Yee K. Wong, Minsu Cho, Cordelia Schmid, Jean Ponce, *SCNet: Learning Semantic Correspondence*, International Conference on Computer Vision (**ICCV**), Venice, Italy, October 2017.
3. **Kai Han**, Kwan-Yee K. Wong, Xiao Tan, *Single View 3D Reconstruction under an Uncalibrated Camera and an Unknown Mirror Sphere*, International Conference on 3D Vision (**3DV**), pages 408-416, California, USA, October 2016.
4. **Kai Han**, Kwan-Yee K. Wong, Dirk Schnieders, Miaomiao Liu, *Mirror Surface Reconstruction under an Uncalibrated Camera*, IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**), pages 1772-1780, Las Vegas, USA, June 2016.
5. **Kai Han**, Kwan-Yee K. Wong, Miaomiao Liu, *A Fixed Viewpoint Approach for Dense Reconstruction of Transparent Objects*, IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**), pages 4001-4008, Boston, USA, June 2015.
6. Zili Zhang, Xuan Wang, **Kai Han**, Zoe L. Jiang, *A Novel Arc Segmentation Approach for Document Image Processing*, International Journal of Pattern Recognition and Artificial Intelligence (**IJPRAI**), 29(1):1553001:1-29, February 2015.
7. Lei Zheng, **Kai Han**, *Extracting Categorical Topics from Tweets Using Topic Model*, Asia Information Retrieval Societies Conference (**AIRS**), pages 86-96, Singapore, December, 2013.

8. **Kai Han**, Xuan Wang, Zili Zhang, Hainan Zhao, *A Novel Remote Eye Gaze Tracking Approach with Dynamic Calibration*, IEEE International Workshop on Multimedia Signal Processing (**MMSP**), pages 111-116, Pula, Italy, September, 2013.
9. Lei Zheng, **Kai Han**, *Multi Topic Distribution Model for Topic Discovery in Twitter*, IEEE International Conference on Semantic Computing (**ICSC**), pages 420-425, California, USA, September, 2013.
10. Chenglong Yu, Xuan Wang, Muhammad Waqas Anwar, **Kai Han**, *Multi-Features Encoding and Selecting Based on Genetic Algorithm for Human Action Recognition from Video Research*, Research Journal of Applied Sciences, Engineering and Technology (**RJASET**), 5(21): 5128-5132, May, 2013.
11. **Kai Han**, Xuan Wang, Chenglong Yu, *An Efficient Visual Tracking Method Based on Single CCD Camera*, IEEE International Conference on Machine Learning and Cybernetics (**ICMLC**), pages 1163-1168, Xian, China, July, 2012.

[Patents]

1. Xuan Wang, **Kai Han**, Zili Zhang, Chenglong Yu, *A Non-contact Gaze Tracking Method Based on Adaptive Calibration*, CN103761519A, 2014, China.

## EXPERIENCE

### **WILLOW team of INRIA / ENS**

Paris, France

*Research Intern*

**Sept 2016 - Jan 2017**

- Project: Learning Semantic Correspondence
- Advisors: Prof. Jean Ponce and Prof. Minsu Cho
- Contribution: Investigated the problem of semantic matching, proposed a convolutional neural network architecture, called SCNet, for learning a geometrically plausible model for semantic correspondence. State-of-the-art results were achieved on several benchmarks (e.g., PASCAL VOC, Caltech-101). One paper based on this project has been accepted by ICCV 2017.

### **The University of Hong Kong**

Hong Kong, China

*Teaching Assistant*

**Sept 2014 - present**

- COMP3317 Computer Vision, Spring 2017
- COMP3317 Computer Vision, Fall 2015
- COMP3317 Computer Vision, Fall 2014

### **Joint Project of HIT and HuaTing Automation Co., Ltd.**

Shenzhen, China

*Engineer*

**Jun 2012 - Dec 2012**

- Project: Server of Remote Natural Gas Flow Meters
- Contribution: Developed a commercial server to manage multiple remote natural gas flow meters produced by HuaTing Automation Co., Ltd.. The server provided 7 × 24 hours services for more than 4000 remote meters, and the number of meters kept growing.

### **National Fundamental Software Co., Ltd.**

Harbin, China

*Development Intern*

**Jan 2010 - Feb 2010**

- Participated in the development of the paperless signature system.
- Took the responsibility of debugging new game products.

## HONORS & AWARDS

- Pilot Scheme Scholarship, HKU, 2017
- Hong Kong and China Gas Company Limited Scholarships, 2015-2016
- Postgraduate Scholarship, HKU, 2014-2018
- Outstanding Graduate (Gold Medal), HIT, 2013
- Excellent Thesis Award, HIT, 2013
- First Class Scholarship, HIT, 2013
- Special Class Scholarship, HIT, 2011-2012
- Outstanding Graduate of Heilongjiang Province, 2011
- Outstanding Graduate, HEU, 2011
- Excellent Thesis Award, HEU, 2011
- National Undergraduate Information Security Contest, Second Prize, 2010
- National Undergraduate Electronic Design Contest-IS Invitational Contest, Third Prize, 2010
- Innovation Scholarship; First (twice)/Second/Third Class Scholarship, HEU, 2007-2011

## TECHNICAL SKILLS

- Programming in: MatLab, C/C++, Python, Java
- Language: Mandarin (native speaker), English (working proficiency)
- Others: PyTorch, Matconvnet, POV-Ray, MeshLab, LaTeX, OpenCV, etc

## ACADEMIA SERVICE

Reviewer & External Reviewer: ICCV 2017, CVPR 2017, CVPR 2016, ECCV 2016, etc

## CAMPUS ACTIVITIES

- Chairman, HIT Natural Studio (organizing diverse Talks/Lectures), 2011-2012
- Monitor, 2007-2011
- Minister of Public Relations in Student Union, 2009 - 2010