

# Hang Chu

Mobile: +1 (647) 627-8109 / E-mail: [hc772@cornell.edu](mailto:hc772@cornell.edu)

Address: 21 Carlton St., Apt. 1605, Toronto, ON M5B 1L3, Canada / Homepage: [chuhang.github.io](http://chuhang.github.io)

## EDUCATION

---

**School of Electrical and Computer Engineering, Cornell University** Aug. 2013-Aug. 2015

*M.S. (Thesis-Track), Artificial Intelligence Concentration*

- GPA 4.00/4.00 (rank 1/8)
- Thesis: Vision-based Localization with Map Information
- Thesis committee: Prof. Tsuhan Chen, and Prof. Ashutosh Saxena

**Dept. of Electronic Engineering, Shanghai Jiao Tong University (SJTU)** Sept. 2009-July 2013

*B.S. in Information Engineering*

- Major GPA 3.90/4.30 (91.2/100) (rank 20/290)
- Thesis: A Heat-Map-based Algorithm for Group Activity Recognition
- Excellent Bachelor Thesis Award (3/290)

## ACADEMIC EXPERIENCES

---

**University of Toronto** Oct. 2015-present

- Visiting Researcher, Machine Learning Group, Dept. of Computer Science

**Toyota Technological Institute at Chicago** June 2015-Oct. 2015

- Robotics Visiting Student

**INSA Lyon-SJTU Specific Program in Engineering** Jan. 2013-May 2013

- Image & Vision Technologies

**RWTH Aachen University** Aug. 2012-Sept. 2012

- Automation & Simulation Summer School

## PUBLICATIONS

---

### Journal Papers:

- Weiyao Lin, **Hang Chu**, Jianxin Wu, Bin Sheng, and Zhenzhong Chen, A Heat-Map-based Algorithm for Recognizing Group Activities in Videos, IEEE Transactions on Circuits and Systems for Video Technology (TCSVT), 2013. ([pdf](#), [demo](#))

### Conference Papers:

- **Hang Chu**, Hongyuan Mei, Mohit Bansal, and Matthew R. Walter, Accurate Vision-based Localization by Transferring Between Ground and Satellite Images, Workshop on Transfer and Multi-Task Learning, Neural Information Processing Systems (NIPS Workshop), 2015. ([pdf](#))
- **Hang Chu**, Dong-Ki Kim, and Tsuhan Chen, You Are Here: Mimicking the Human Thinking Process in Reading Floor-Plans, International Conference on Computer Vision (ICCV), 2015. ([pdf](#), [demo](#))
- **Hang Chu**, and Anh Vu, Consistent Ground-Plane Mapping: A Case Study Utilizing Low-Cost Sensor Measurements and a Satellite Image, International Conference on Robotics and Automation (ICRA), 2015. ([pdf](#), [demo](#))
- **Hang Chu**, Andrew Gallagher, and Tsuhan Chen, GPS Refinement and Camera Orientation Estimation from a Single Image and a 2D Map, Workshop on Mobile Vision, Computer Vision and Pattern Recognition (CVPR Workshop), 2014. ([pdf](#), [demo](#))
- **Hang Chu**, Weiyao Lin, Jianxin Wu, Xingtong Zhou, Yuanzhe Chen, and Hongxiang Li, A New Heat-Map-based Algorithm for Human Group Activity Recognition, ACM Multimedia (ACM MM), 2012. ([pdf](#), [demo](#))

### Under Review:

- **Hang Chu**, Hongyuan Mei, Mohit Bansal, and Matthew R. Walter, Accurate Vision-based Vehicle Localization using Satellite Imagery, submitted to International Conference on Robotics and Automation (ICRA), 2016. ([pdf](#))

## RELATED COURSES

---

**Undergraduate Courses:** Linear Algebra (A+), Discrete Mathematics (A+), Probability and Statistics (A), Digital Image Processing (A), Thesis Project (A+)

**Graduate Courses:** Computer Vision (A+), Advanced Robot Learning (A), Heuristic Methods for Optimization (A-), Numerical Analysis (A), Biomedical Image Analysis (A+)

**Certified Online Courses:** Machine Learning (with distinction), Probabilistic Graphical Models (with distinction)

## RESEARCH EXPERIENCES

---

### Visiting Researcher, Dept. of Computer Science, University of Toronto

**Advisors:** Prof. Raquel Urtasun, and Prof. Sanja Fidler

**Oct. 2015-present**

- Ongoing research on semantic scene understanding.

### Robotics Visiting Student, Toyota Technological Institute at Chicago (TTI-C)

**Advisor:** Prof. Matthew R. Walter

**June 2015-Oct. 2015**

- Proposed a method for localizing a ground image in a satellite image, using deep neural network features and multi-view learning.
- Worked on a system for localizing an agent in forest environment, with the aids from a companion scout UAV and natural language descriptions. (Collaborative project with MIT Lincoln Lab)
- Published two conference papers (one under review).

### M.S. Student, Advanced Multimedia Processing Lab, Cornell University

**Advisors:** Prof. Tsuhan Chen, Prof. Ashutosh Saxena, and Dr. Andrew Gallagher

**Aug. 2013-Aug. 2015**

- Proposed methods and developed systems in multiple projects of vision-based localization with map information.
- Developed a system for automatic photo aesthetic evaluation using objectness detection and photography composition rules. (Collaborative project with Futurewei Media Lab)
- Mentored Cornell M.Eng. student project of Kaizhou Xu, on visual-based indoor 3D reconstruction.
- Published two conference papers.

### Undergraduate Research Student, Computer Vision Group, Dept. of Electronic Engineering, SJTU

**Advisor:** Prof. Weiyao Lin

**Jan. 2012-July 2013**

- Proposed the method and developed the system for automatic group activity recognition in surveillance videos, based on a temporal-spatial model inspired by heat diffusion.
- Published one conference paper and one journal paper.

### Undergraduate Research Student, Machine Learning Group, Dept. of Computer Science, SJTU

**Advisor:** Prof. Wu-Jun Li

**Sept. 2011-Jan. 2013**

- Studied image hashing and sentiment analysis in social networks.

## INDUSTRIAL EXPERIENCES

---

### Research Intern, Volkswagen Electronics Research Laboratory

**June 2014-Aug. 2014**

- Proposed the method and developed the system for automatic registration of high resolution road-lane images, using low-cost vehicle sensors and a low resolution satellite image.
- Published one conference paper.

### Research Intern, China Mobile Research Institute

**July 2012-Sept. 2012**

- Studied WiFi fingerprint-based indoor localization algorithms.

## HONORS & AWARDS

---

ICRA Student Travel Award, 2015

SJTU Excellent Bachelor Thesis Award, 2013 (3/290)

ACM Multimedia Student Travel Award, 2012

SJTU Pan Wen Yuan Scholarship, 2010 (15/630)

SJTU Student Award, 2009-2013 (60/630)

## ACADEMIC SERVICES

---

### Reviewer/External Reviewer

- Conferences: CVPR 2014-2015, ECCV 2014, ACCV 2014, ICIP 2015
- Journals: Circuits Systems and Signal Processing, Visual Communication and Image Representation

## SKILLS

---

Proficient in: C++, Matlab, OpenCV

Experience in: Python, JavaScript, ROS, OpenGL, Caffe