Hang Chu

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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, to appear at 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, to appear at 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