



# HangChu

PhD Student in Computer Vision

## Tel & Skype

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hangchu122

## Mail

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## Website

chuhang.github.io

## Programming

Proficient in

C/C++  
Matlab  
Python

Experience in

HTML/Javascript  
VHDL  
Lua

## Software Skills

ROS  
OpenCV  
Halide  
WebGL  
LabVIEW  
Caffe  
TensorFlow  
Torch  
PyTorch  
L<sup>A</sup>T<sub>E</sub>X

## Languages

Mandarin (*native*)  
English (*proficient*)  
Spanish (*60% Duolingo*)

## Education

- 2016 - Now **Ph.D. Student in Machine Learning** [University of Toronto](#)  
GPA: 4.00/4.00  
Advisors: Raquel Urtasun and Sanja Fidler
- 2013 - 2015 **M.S. in Electrical and Computer Engineering** [Cornell University](#)  
GPA: 4.00/4.00 (rank 1/8)  
Thesis: Vision-based Localization with Map Information  
Advisors: Tsuhan Chen and Ashutosh Saxena
- 2009 - 2013 **B.S. in Information Engineering** [Shanghai Jiao Tong University](#)  
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)  
Advisors: Weiyao Lin and Wu-Jun Li

## Experience

- 05/18 - 08/18 **Research Intern** [Nvidia Research](#)  
Worked with Sanja Fidler, Deep Learning Team.  
3D content generation.
- 05/17 - 08/17 **Research Intern** [Google Research](#)  
Worked with Utsav Prabhu and Andrew Gallagher, Machine Perception Team.  
Video semantic understanding.
- 10/15 - 06/16 **Visiting Researcher** [University of Toronto](#)  
Semantic scene understanding, Machine Learning group.
- 06/15 - 10/15 **Research Intern** [Toyota Technological Institute](#)  
Worked with Matthew Walter, Robot Intelligence Through Perception Lab.  
Cross-view localization of a ground image in a satellite image.  
Localization in forest environment (Collaboration with MIT Lincoln Lab).
- 06/14 - 08/14 **Research Intern** [Volkswagon Electronic Research Lab](#)  
Worked with Anh Vu, Driving Assistance Systems team.  
Registration of high-resolution road-lane images for mapping.

## Courses

### Undergraduate

Linear Algebra (A+)  
Discrete Math (A+)  
Probability & Statistics (A)  
Image Processing (A)  
Signal Processing (A)

### Graduate

Computer Vision (A+)  
Medical Image Analysis (A+)  
Generative Models (A+)  
Robot Learning (A)  
Numerical Analysis (A)  
Heuristic Optimization (A-)

### Certified

Machine Learning  
Graphical Models

## Services

### Conference Reviewer

-ICME 2018  
-BMVC 2017  
-ICCV 2017  
-NIPS 2016  
-IROS 2016

### Journal Reviewer

-Circuits Systems and Signal Processing  
-Visual Communication and Image Representation  
-Security and Communication Networks  
-Image Communication  
-Intelligent Transport System  
-Neural Networks and Learning Systems

## Awards

UofT Fellowship  
2016-2020  
ICRA Travel Award  
2015  
Bachelor Thesis Award  
2013  
ACM MM Travel Award  
2012  
Pan Wen Yuan Scholarship  
2010  
SJTU Scholarship  
2009-2013

## Places Lived

Toronto, ON  
Pittsburgh, PA  
Chicago, IL  
Bay Area, CA  
Ithaca, NY  
Shanghai, China  
Shijiazhuang, China

## Publications

### Work-In-Progress

- [1] Video-Undirection: Discovering Video Scenes from Shot Sequences  
**Hang Chu**, Utsav Prabhu, Andrew Gallagher, Michael Nechyba  
*Manuscript*

### Journal

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

### Conference

- [3] Single Image Intrinsic Decomposition without a Single Intrinsic Image [\[pdf\]](#)  
Wei-Chiu Ma, **Hang Chu**, Bolei Zhou, Raquel Urtasun, Antonio Torralba  
*European Conference on Computer Vision (ECCV)*, 2018.
- [4] A Face-to-Face Neural Conversation Model [\[pdf\]](#)[\[demo\]](#)  
**Hang Chu**, Daiqing Li, Sanja Fidler  
*Computer Vision and Pattern Recognition (CVPR)*, 2018.
- [5] SurfConv: Bridging 3D and 2D Convolution for RGBD Images [\[pdf\]](#)[\[code\]](#)  
**Hang Chu**, Wei-Chiu Ma, Kaustav Kundu, Raquel Urtasun, Sanja Fidler  
*Computer Vision and Pattern Recognition (CVPR)*, 2018.
- [6] TorontoCity: Seeing the World with a Million Eyes [\[pdf\]](#)  
Shenlong Wang, Min Bai\*, Gellert Mattyus\*, **Hang Chu\***, Wenjie Luo, Bin Yang, Justin Liang, Joel Cheverie, Sanja Fidler, Raquel Urtasun  
*International Conference on Computer Vision (ICCV)*, 2017.
- [7] HouseCraft: Building Houses from Rental Ads and Street Views [\[pdf\]](#)[\[demo\]](#)[\[code\]](#)  
**Hang Chu**, Shenlong Wang, Raquel Urtasun, Sanja Fidler  
*European Conference on Computer Vision (ECCV)*, 2016.
- [8] You Are Here: Mimicking the Human Thinking Process in Reading Floor-Plans [\[pdf\]](#)[\[demo\]](#)  
**Hang Chu**, Dong-Ki Kim, Tsuhan Chen  
*International Conference on Computer Vision (ICCV)*, 2015.
- [9] Consistent Ground-Plane Mapping: A Case Study Utilizing Low-Cost Sensor Measurements and a Satellite Image [\[pdf\]](#)[\[demo\]](#)  
**Hang Chu**, Anh Vu  
*International Conference on Robotics and Automation (ICRA)*, 2015.
- [10] A New HeatMap-based Algorithm for Human Group Activity Recognition [\[pdf\]](#)[\[demo\]](#)  
**Hang Chu**, Weiyao Lin, Jianxin Wu, Xingtong Zhou, Yuanzhe Chen, Hongxiang Li  
*ACM Multimedia (ACM MM)*, 2012.

### Workshop

- [11] Song From PI: A Musically Plausible Network for Pop Music Generation [\[pdf\]](#)[\[demo\]](#)  
**Hang Chu**, Raquel Urtasun, Sanja Fidler  
*International Conference on Learning Representations Workshop (ICLR-W)*, 2016.
- [12] Accurate Vision-based Localization by Transferring Between Ground and Satellite Images [\[pdf\]](#)  
**Hang Chu**, Hongyuan Mei, Mohit Bansal, Matthew Walter  
*Neural Information Processing Systems Workshops (NIPS-W)*, 2015.
- [13] GPS Refinement and Camera Orientation Estimation from a Single Image and a 2D Map [\[pdf\]](#)[\[demo\]](#)[\[code\]](#)  
**Hang Chu**, Andrew Gallagher, Tsuhan Chen  
*Computer Vision and Pattern Recognition Workshops (CVPR-W)*, 2014.