



HangChu

Computer Vision Researcher

Tel & Skype

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hangchu1122

Mail

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Website

chuhang.github.io

Programming

Proficient in

Python
Matlab
C/C++

Experience in

Javascript
VHDL
Java
Julia
Lua

Software Skills

OpenCV
ROS
LabVIEW
Caffe
TensorFlow
Torch
PyTorch
WebGL
Node.js
L^AT_EX

Languages

Mandarin (*native*)
English (*proficient*)
Spanish (*beginner*)

Education

- 2016 - 2020 **Ph.D. in Machine Learning** University of Toronto
GPA: 4.00/4.00
Thesis: Deep Learning Techniques for Digital Content Generation
Worked with 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

- 05/20 - Now **Principal Research Scientist** Autodesk
Autodesk AI Lab.
- 05/19 - 04/20 **Research Intern / Research Collaborator** Facebook
Facebook Reality Labs, with Shugao Ma.
Human face modeling and VR telepresence.
- 05/18 - 04/19 **Research Intern** Nvidia
Deep Learning Research, with Sanja Fidler.
3D content generation for simulation.
- 05/17 - 08/17 **Research Intern** Google
Machine Perception Research, with Utsav Prabhu and Andrew Gallagher.
Video semantic understanding and partitioning.
- 10/15 - 06/16 **Visiting Researcher** University of Toronto
Machine Learning Group, with Raquel Urtasun and Sanja Fidler.
Semantic scene understanding.
- 06/15 - 10/15 **Research Intern** Toyota Technological Institute
Robot Intelligence Through Perception Lab, with Matthew Walter.
Cross-view localization and localization in forest environment.
- 06/14 - 08/14 **Research Intern** Volkswagen
Electronic Research Lab, with Anh Vu.
High-resolution road-lane image registration 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+)
Blockchain (A+)
Robot Learning (A)
Numerical Analysis (A)
Heuristic Optimization (A-)

Certified

Machine Learning
Graphical Models

Services

Conference Reviewer

CVPR-19,20,21,22
ICCV-17,19,21
ECCV-20
ACCV-20
BMVC-17
WACV-21,22
NIPS-16
ICLR-22
AAAI-20,21,22
ICRA-19,20
IROS-16
ICME-18,19,20

Journal Reviewer

IEEE-PAMI
IEEE-CSVT
IEEE-Cybernetics
IEEE-NNLS
IEEE-ITS
Springer-CSSP
Elsevier-PR
Elsevier-VCIR
Elsevier-SPIC
Wiley-SCN

Editorial Board

Frontiers-SPIP

Awards

Vector Research Grant
2018-2020
UoT Fellowship
2016-2020
ICCV Doctral Consortium
2019
ICRA Travel Award
2015
Bachelor Thesis Award
2013
ACM MM Travel Award
2012
Pan Wen Yuan Scholarship
2010
SJTU Scholarship
2009-2013

Publications

Patent

[1] Partitioning Videos

Hang Chu, Michael Nechyba, Andrew Gallagher, Utsav Prabhu
US Patent 10628486, Google, 2019.

[2] Iterative Spatial Graph Generation

Hang Chu, Daiqing Li, David Acuna, Amlan Kar, Maria Shugrina,
Ming-Yu Liu, Antonio Torralba, Sanja Fidler
US Patent App. 16/825199, Nvidia, 2020.

Journal

- [3] 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

- [4] LSD-StructureNet: Modeling Levels of Structural Detail in 3D Part Hierarchies [\[pdf\]](#)
Dominic Roberts, Ara Danielyan, **Hang Chu**, Mani Golparvar-Fard, David Forsyth
International Conference on Computer Vision (ICCV), 2021.
- [5] House-GAN++: Generative Adversarial Layout Refinement Networks [\[pdf\]](#)[\[demo\]](#)
Nelson Nauata, Sepidehsadat Hosseini, Kai-Hung Chang, **Hang Chu**, Chin-Yi Cheng,
Yasutaka Furukawa
Computer Vision and Pattern Recognition (CVPR), 2021.
- [6] Fusion 360 Gallery: A Dataset and Environment for Programmatic CAD
Reconstruction [\[pdf\]](#)
Karl D.D. Willis, Yewen Pu, Jieliang Luo, **Hang Chu**, Tao Du, Joseph G. Lambourne,
Armando Solar-Lezama, Wojciech Matusik
ACM SIGGRAPH (SIGGRAPH), 2021.
- [7] Expressive Telepresence via Modular Codec Avatar [\[pdf\]](#)[\[demo\]](#)
Hang Chu, Shugao Ma, Fernando De la Torre, Sanja Fidler, Yaser Sheikh
European Conference on Computer Vision (ECCV), 2020.
- [8] Neural Turtle Graphics for Modeling City Road Layouts [\[pdf\]](#)[\[demo\]](#)
Hang Chu, Daiqing Li, David Acuna, Amlan Kar, Maria Shugrina, Xinkai Wei,
Ming-Yu Liu, Antonio Torralba, Sanja Fidler
International Conference on Computer Vision (ICCV), **oral**, 2019.
- [9] 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.
- [10] A Face-to-Face Neural Conversation Model [\[pdf\]](#)[\[demo\]](#)
Hang Chu, Daiqing Li, Sanja Fidler
Computer Vision and Pattern Recognition (CVPR), 2018.

Places Lived

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

- [11] 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.
- [12] 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.
- [13] 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.
- [14] 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.
- [15] 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.
- [16] 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 (SIGMM), 2012.

Workshop

- [17] Engineering Sketch Generation for Computer-Aided Design [[pdf](#)]
Karl D.D. Willis, Pradeep Kumar Jayaraman, Joseph G. Lambourne, **Hang Chu**, Yewen Pu
Computer Vision and Pattern Recognition Workshop (CVPRW), 2021.
- [18] 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 (ICLRW), 2016.
- [19] 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 (NIPSW), 2015.
- [20] 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 (CVPRW), 2014.