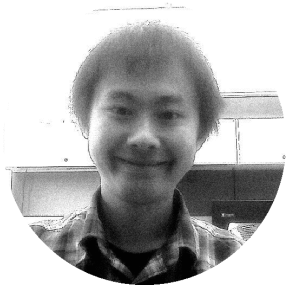

HangChu

Computer Vision Researcher

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+1-647-627-8109
hangchu1122

Mail
chuhang1122@
gmail.com

Website
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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
LaTeX

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

Education

2016 - 2020 **Doctor of Philosophy Candidate, 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 **Master of Science, 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 **Bachelor of Science, 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 - 07/22 **Principal Research Scientist** Autodesk
Autodesk AI Lab.
3D generative models; Augmented Product Design & Learning.

05/19 - 04/20 **Researcher** Facebook
Facebook Reality Labs, with Shugao Ma. Codec avatar & VR telepresence.

05/18 - 04/19 **Researcher** 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-19,20,21,22,23
ICCV-17,19,21
ECCV-20,22
ICASSP-23
3DV-22
ACCV-20
BMVC-17
WACV-21,22
NeurIPS-16,22
ICLR-22,23
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
UofT 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] CLIP-Forge: Towards Zero-Shot Text-to-Shape Generation[pdf][code]
Aditya Sanghi, **Hang Chu**, Joseph G. Lambourne, Ye Wang, Chin-Yi Cheng, Marco Fumero, Kamal Rahimi Malekshan
Computer Vision and Pattern Recognition (**CVPR**), 2022.

[5] JoinABLe: Learning Bottom-up Assembly of Parametric CAD Joints[pdf][code]
Karl D.D. Willis, Pradeep Kumar Jayaraman, **Hang Chu**, Yunsheng Tian, Yifei Li, Daniele Grandi, Aditya Sanghi, Linh Tran, Joseph G. Lambourne, Armando Solar-Lezama, Wojciech Matusik
Computer Vision and Pattern Recognition (**CVPR**), 2022.

[6] 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.

[7] 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.

[8] Fusion 360 Gallery: A Dataset and Environment for Programmatic CAD Reconstruction [pdf][code]
Karl D.D. Willis, Yewen Pu, Jieliang Luo, **Hang Chu**, Tao Du, Joseph G. Lambourne, Armando Solar-Lezama, Wojciech Matusik
ACM SIGGRAPH (**SIGGRAPH**), 2021.

[9] 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.

[10] 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.

Places Lived

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

[11] 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.

[12] A Face-to-Face Neural Conversation Model [pdf][demo]
Hang Chu, Daiqing Li, Sanja Fidler
Computer Vision and Pattern Recognition (**CVPR**), 2018.

[13] 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.

[14] 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.

[15] 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.

[16] 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.

[17] 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.

[18] 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

[19] 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.

[20] 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.

[21] 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.

[22] 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.

Preprint

[23] SimCURL: Simple Contrastive User Representation Learning from Command Sequences
Hang Chu, Amir Hosein Khasahmadi, Karl D.D. Willis, Fraser Anderson, Yaoli Mao
Linh Tran, Justin Matejka, Jo Vermeulen
arXiv preprint 2207.14760, 2022.

[24] Learning to Generate Diverse Dance Motions with Transformer
Jiaman Li, Yihang Yin, **Hang Chu**, Yi Zhou, Tingwu Wang, Sanja Fidler, Hao Li
arXiv preprint 2008.08171, 2020.