

# Haidong ZHU

<https://haidongz-usc.github.io/>

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## EDUCATION

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- **University of Southern California** Los Angeles, CA  
*Ph.D. in Computer Science*  
*Advisor: Prof. Ram Nevatia* Aug. 2019 – Dec. 2024 (expected)
- **University of Southern California** Los Angeles, CA  
*M.S. in Computer Science*  
*GPA: -* Aug. 2019 – May. 2021 (expected)
- **Tsinghua University** Beijing, China  
*B.E. in Electronic Information Science and Technology*  
*GPA: 3.70/4.00* Aug. 2015 – Jun. 2019

## RESEARCH EXPERIENCE

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- **University of Southern California** Los Angeles, CA  
*Research Assistant*  
*Advisor: Prof. Ram Nevatia* Aug. 2019 – present
- **Harvard University** Cambridge, MA  
*Visiting Undergraduate Research Intern*  
*Advisor: Prof. Hanspeter Pfister* Jul. 2018 – Sept. 2018
- **Tsinghua University** Beijing, China  
*Undergraduate Research Assistant*  
*Advisor: Prof. Jiansheng Chen, Jiwen Lu and Ji Wu* May 2017 – Jun. 2019

## SKILLS

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- **Programming Skills:** Java, C/C++, MATLAB, Python, Git, Verilog, Linux
- **Deep Learning Frameworks:** Caffe, PyTorch, TensorFlow, Keras, Chainer

## MANUSCRIPTS

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- Chuanzi He, Haidong Zhu, Jiyang Gao, Kan Chen, and Ram Nevatia, **PARR: Predicate Analysis for Referring Relationships**, *Under review*.
- Yueqi Duan, Haidong Zhu, Chaojian Li, Jiwen Lu, and Jie Zhou, **Unsupervised 3D Feature Learning via Point Cloud Completion**, *Under review*.
- Haidong Zhu, Jialin Shi, and Ji Wu, **Pick-and-Learn: Automatic Quality Evaluation for Noisy-Labeled Image Segmentation**, *Proceedings of the International Conference on Medical Image Computing and Computer Assisted Intervention (MICCAI), LNCS 11769, pp. 576-584, 2019*.
- Brian Matejek, Daniel Haehn, Haidong Zhu, Donglai Wei, Toufiq Parag, and Hanspeter Pfister, **Biologically Constrained Graphs for Global Connectomics Reconstruction**, *Proceedings of the IEEE Conf. on Computer Vision and Pattern Recognition (CVPR), pp. 2089-2098, 2019*.

## RESEARCH PROJECTS

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- **IRIS Computer Vision Group**, University of Southern California Los Angeles, CA  
*Advisor: Prof. Ram Nevatia* Aug. 2019 - present
  - **Query Grounding:** Object localization and referring based on the query relevant with the image.
  - **Referring Relationship:** Relationship analysis for the objects detected in the same image.
- **Visual Computing Group**, Harvard University Cambridge, MA  
*Advisor: Prof. Hanspeter Pfister* Jun. 2018 - Sept. 2018
  - **3D segmentation:** Improved the 3D segmentation pipeline for connectomic projects and generated state-of-the-art result on the same quality of affinities compared with present methods, got 3<sup>rd</sup> place on SNEMI3D public dataset.

- **Graphs Reconstruction:** Set up graph improvement step for error correction in connectomic segmentation.
- **Multimedia Signal Processing Lab**, Tsinghua University Beijing, China  
*Advisor: Prof. Ji Wu* *Feb. 2018 - Apr. 2019*
  - **Noisy-labeled Image Segmentation:** Improved the performance of pixel-wise segmentation network while part of training samples are noisy-labeled.
  - **Meta Learning:** Introduced meta-learning methods for assessing the quality of the input image without annotations.
- **i-Vision Group**, Tsinghua University Beijing, China  
*Advisor: Associate Prof. Jiwen Lu* *Feb. 2018 - Apr. 2019*
  - **Metric Learning:** Employed hardness-aware strategy to improve efficiency and result of metric learning.
  - **3D Vision:** Investigated point cloud completion and autoencoder framework for 3D reconstruction task.
  - **Self-supervised Learning:** Employed self-supervision strategy as pretext for 3D point cloud classification.
- **Information Cognition and Intelligent System Lab**, Tsinghua University Beijing, China  
*Advisor: Associate Prof. Jiansheng Chen* *Jun. 2017 - Jan. 2018*
  - **Liveness Detection System:** Embedded the liveness detection strategy on mobile chips and systems.
  - **Big Data System:** Set up the human identity system for huge information management and relation prediction.
  - **Image Caption:** Studied the overfitting cases in image captioning models.

## PROJECTS AND COURSEWORK

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- **Structural Relational Reasoning for Point Clouds:** Introduced structural relational network for reasoning.
- **Hardness-aware Deep Metric Learning:** Hardness samples generation for metric learning sampling.
- **Competition and Lecture Management System:** Lecture management system with wechat and website version.
- **Video-audio Similarity Evaluation System:** Evaluating similarity between given audio and visual fragments.
- **Online Big Data Face Recognition System:** Real time face recognition with big data management.

## AWARDS AND HONORS

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| • Outstanding Undergrad Thesis                    | 2019      |
| • Scholarship for Top Research Projects           | 2018      |
| • Scholarship for Academic Excellence             | 2018      |
| • 3rd Place in SNEMI3D Challenge                  | 2018      |
| • Scholarship for Social Practice Excellence      | 2016/2017 |
| • Scholarship for Voluntary and Public Excellence | 2016      |
| • 2nd Prize in Tsinghua Volunteer Activity        | 2016      |