

# HAIDONG ZHU

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## EDUCATION

Ph.D. student, Computer Science, University of Southern California, 2019 - 2024 (expected)

B.E., Electronic Information Science and Technology, Tsinghua University, 2015 - 2019

## PUBLICATIONS

Or Litany, Congyue Deng, Yueqi Duan, Haidong Zhu, Haggai Maron, Adrien Poulenard, Andrea Tagliasacchi, and Leonidas Guibas, **Equivariant Autodecoders for Neural Implicit Representation**, *In preparation*.

Haidong Zhu, Arka Sadhu, Zhaoheng Zheng, and Ram Nevatia, **Utilizing Every Image Object for Semi-supervised Phrase Grounding**, *Proceedings of the IEEE/CVF Winter Conference on Applications of Computer Vision (WACV)*, pp. 2210-2219, 2021. [Paper]

Yueqi Duan\*, Haidong Zhu\*, He Wang, Li Yi, Ram Nevatia, and Leonidas J. Guibas, **Curriculum DeepSDF**, *Accepted by ECCV 2020*. (equal contribution) [Paper][Code]

Chuanzi He, Haidong Zhu, Jiyang Gao, Kan Chen, and Ram Nevatia, **CPARR: Category-based Proposal Analysis for Referring Relationships**, *Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition Workshops (CVPRW)*, pp. 4074-4083, 2020. [Paper]

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. [Paper]

Brian Matejek, Daniel Haehn, Haidong Zhu, Donglai Wei, Toufiq Parag, and Hanspeter Pfister, **Biologically Constrained Graphs for Global Connectomics Reconstruction**, *Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR)*, pp. 2089-2098, 2019. [Paper][Project][Code]

## PROFESSIONAL ACTIVITIES

Reviewer: ICME 2020, BMVC 2020, WACV 2021

## TECHNICAL SKILLS

**Deep Learning Framework** Tensorflow, Keras, PyTorch, Theano, Caffe

**Programming Language** C/C++, Python, MATLAB, Mathematica, Verilog,

## RESEARCH EXPERIENCE

**IRIS Computer Vision Lab, University of Southern California**

**Los Angeles, CA**

Research Assistant, Advisor: Prof. Ram Nevatia

Aug. 2019 - present

- **Query Grounding:** Object localization and referring based on the query relevant with the image. [WACV 2021]
- **Referring Relationship:** Relationship analysis for the objects detected in the same image. [CVPRW 2020]
- **Mesh Reconstruction:** Improved the performance of reconstruction of 3D mesh from SDF value [ECCV 2020]

**Multimedia Signal Processing Lab, Tsinghua University**

**Beijing, China**

Research Assistant, Advisor: Prof. Ji Wu

Oct. 2018 - Jun. 2019

- **Noisy-labeled Image Segmentation:** Improved the performance of pixel-wise segmentation network while part of training samples are noisy-labeled. [MICCAI 2019]
- **Large-scale Biomedical Image Segmentation:** Set up a biomedical image segmentation system for biomedical images.

**Visual Computing Group, Harvard University**

**Cambridge, MA**

Undergraduate Research Intern, Advisor: Prof. Hanspeter Pfister

Jun. 2018 - Sep. 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. [CVPR 2019]

**i-Vision Group**

**Beijing, China**

Research Assistant, Advisor: Prof. Jiwen Lu

Feb. 2018 - Apr. 2019

- **Metric Learning:** Applied hardness-aware strategy to improve efficiency and result of metric learning.
- **Point Cloud Reconstruction:** Investigated point cloud completion and autoencoder framework for 3D reconstruction task.
- **Self-supervised Learning:** Applied self-supervision strategy as pretext for 3D point cloud classification.

## COURSE PROJECTS

**Structural Relational Reasoning for Point Clouds** Structural relational network for reasoning for point clouds.

**Hardness-aware Deep Metric Learning** Automatically use hard samples generation for metric learning sampling.

**Competition and Lecture Management System** Lecture management system with WeChat and website versions.

**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.