

HAIDONG ZHU

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

+1-213-605-3650

haidongz@usc.edu

EDUCATION

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

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

INTERNSHIP

Research Intern @ Microsoft, Redmond, WA, Advisor: Dr. Tianyu Ding

May. 2023 - Aug. 2023

Applied Scientist Intern @ Amazon, Bellevue, WA, Advisor: Dr. Yuyin Sun

May. 2022 - Aug. 2022

Research Intern @ Bytedance Inc., Mountain View, CA, Advisor: Dr. Ye Yuan

May. 2021 - Aug. 2021

Visiting Researcher @ VCG, Harvard University, Cambridge, MA, Advisor: Prof. Hanspeter Pfister Jun. 2018 - Sept. 2018

SELECTED PUBLICATIONS

For the full publication list, please refer to my [Google Scholar](#).

1. 3-D Representation and Rendering

- Haidong Zhu* et al., **CaesarNeRF: Calibrated Semantic Representation for Few-shot Generalizable Neural Rendering**, *arXiv*, 2023. [Project][Paper][Code]
- Haidong Zhu* et al., **CAT-NeRF: Constancy-Aware Tx²Former for Dynamic Body Modeling**, *IEEE/CVF Conference on Computer Vision and Pattern Recognition Workshops (CVPRW)*, pp. 6618-6627, 2023. [Paper][Code]
- Haidong Zhu et al., **Multimodality Neural Radiance Field**, *IEEE International Conference on Robotics and Automation (ICRA)*, pp. 9393-9399, 2023. [Paper]
- Yueqi Duan*, Haidong Zhu*, et al., **Curriculum DeepSDF**, *European Conference on Computer Vision (ECCV)*, pp. 51-67, 2020. (equal contribution) [Paper][Code]

2. Biometrics

- Haidong Zhu et al., **ShARc: Shape and Appearance Recognition for Person Identification In-the-wild**, *IEEE/CVF Winter Conference on Applications of Computer Vision (WACV)*, 2024. [Paper]
- Haidong Zhu* et al., **GaitRef: Gait Recognition with Refined Skeletons**, *IEEE International Joint Conference on Biometrics (IJCB)*, 2023. [Paper][Code]
- Haidong Zhu et al., **Gait Recognition Using 3-D Human Body Shape Inference**, *IEEE/CVF Winter Conference on Applications of Computer Vision (WACV)*, pp. 909-918, 2023. [Paper][Supp]

3. Vision and Language

- Zhaoheng Zheng, Haidong Zhu, et al., **CAILA: Concept-Aware Intra-Layer Adapters for Compositional Zero-Shot Learning**, *IEEE/CVF Winter Conference on Applications of Computer Vision (WACV)*, 2024. [Paper]
- Haidong Zhu et al., **Self-supervised Learning for Sentiment Analysis via Image-text Matching**, *IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*, pp. 1710-1714, 2022. [Paper]
- Haidong Zhu, et al., **Utilizing Every Image Object for Semi-supervised Phrase Grounding**, *IEEE/CVF Winter Conference on Applications of Computer Vision (WACV)*, pp. 2210-2219, 2021. [Paper]
- Chuanzi He, Haidong Zhu, et al, **CPARR: Category-based Proposal Analysis for Referring Relationships**, *IEEE/CVF Conference on Computer Vision and Pattern Recognition Workshops (CVPRW)*, pp. 4074-4083, 2020. [Paper]

4. Biomedical Images Analysis

- Haidong Zhu, et al., **Pick-and-Learn: Automatic Quality Evaluation for Noisy-Labeled Image Segmentation**, *International Conference on Medical Image Computing and Computer Assisted Intervention (MICCAI)*, LNCS 11769, pp. 576-584, 2019. [Paper]
- Brian Matejek, Daniel Haehn, Haidong Zhu, et al., **Biologically Constrained Graphs for Global Connectomics Reconstruction**, *IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR)*, pp. 2089-2098, 2019. [Paper][Code]

PROFESSIONAL ACTIVITIES

Reviewer:

- *Conferences*: ICME [2020-2022], BMVC [2020-now], WACV [2021-now], IROS [2021], AAAI [2022-now], MICCAI [2022], ICPR [2022], ECCV [2022], CVPR [2023-now], ICCV [2023], EMNLP [2022].
- *Workshops*: MULA [2020-now],
- *Journals*: IJCV [2021], T.MM [2022-now], MM [2022], TPAMI [2022-now]

RESEARCH EXPERIENCE

IRIS Computer Vision Lab, University of Southern California

Los Angeles, CA

Research Assistant, Advisor: Prof. Ram Nevatia

Aug. 2019 - present

- **Biometrics:** Identification with gait, body and other biometrics. [WACV 2023][IJCB 2023][WACV 2024]
- **Skeleton Action Recognition:** Action recognition from skeleton sequences from videos. [ICPR 2022]
- **Sentiment Analysis:** Self-supervised sentiment classification with multimodal matching. [ICASSP 2022]
- **Vision and Language:** Grounding and compositional learning. [WACV 2021, TAC 2020, WACV 2024]
- **3D Vision and Rendering:** Improved the performance of reconstruction of 3D representation with implicit function and neural radiance field. [ECCV 2020][CVPRW 2023]
- **Referring Relationship:** Relationship analysis for the objects detected in the same image. [CVPRW 2020]

Applied Science Group, Microsoft.

Redmond, WA

Research Intern, Advisor: Dr. Tianyu Ding

May. 2023 - Aug. 2023

- **Few-shot Generalizable NeRF:** Extending existing generalizable NeRF for few-reference view cases. [arXiv]
- **NeRF for Scene Editing:** Applying generalizable NeRF for scene editing with 3-D consistency.

Lab 126, Amazon.

Bellevue, WA

Applied Scientist Intern, Advisor: Dr. Yuyin Sun

May. 2022 - Aug. 2022

- **Multimodality NeRF:** NeRF reconstruction with multimodality input. [ICRA 2023]
- **Pointcloud registration:** Align and register different 3-D point clouds describing the same scene.

Intelligent Creation Lab, ByteDance Inc.

Mountain View, CA

Research Intern, Advisor: Dr. Ye Yuan

May. 2021 - Aug. 2021

- **Mesh Reconstruction:** Fine grained mesh for human body shape from single image. [ICPR 2022]
- **Clothing Network:** Automatic clothing network for 3-D human body shape with generation.

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 3rd 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.
- **Self-supervised Learning:** Applied self-supervision strategy as pretext for 3D point cloud classification.

TECHNICAL SKILLS

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

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

COURSE PROJECTS

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

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

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.