HAIDONG ZHU

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EDUCATION

Ph.D. candidate, Computer Science, University of Southern California, 2019 - 2024 (expected)
B.E., Electronic Information Science and Technology, Tsinghua University, 2015 - 2019

PUBLICATIONS

Haidong Zhu, Yuyin Sun, Chi Liu, Lu Xia, Jiajia Luo, Nan Qiao, Ram Nevatia, and Cheng-Hao Kuo, **Multimodality Neural Radiance Field**, *Under review.*

Haidong Zhu, Zhaoheng Zheng, and Ram Nevatia, **Gait Recognition Using 3-D Human Body Shape Inference**, *Under review.*

Haidong Zhu, Wanrong Zheng, Zhaoheng Zheng, and Ram Nevatia, **Animatable Neural Radiance Field with Temporal Constancy and Uniqueness**, *Under review.*

Haidong Zhu, Ye Yuan, Yiheng Zhu, Xiao Yang, and Ram Nevatia, **OPEN: Order-preserving Point Cloud Encoder-Decoder Network for HumanBody Shape Refinement with Dense Correspondence**, *International Conference on Pattern Recognition (ICPR), 2022.* [Paper][Supp]

Haidong Zhu, Zhaoheng Zheng, and Ram Nevatia, **Two-stream Temporal Fusion for Skeleton Action Recognition**, *International Conference on Pattern Recognition (ICPR), 2022.* [Paper][Supp]

Haidong Zhu, Zhaoheng Zheng, Mohammad Soleymani, and Ram Nevatia, **Self-supervised Learning for Sentiment Analysis via Image-text Matching**, *IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP), 2022.* [Paper]

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]

Manling Li *et al.*, **GAIA at SM-KBP 2020 - A Dockerized Multi-media Multi-lingual Knowledge Extraction, Clustering, Temporal Tracking and Hypothesis Generation System**, *Text Analysis Conference (TAC), 2020.* [Paper]

Yueqi Duan*, Haidong Zhu*, He Wang, Li Yi, Ram Nevatia, and Leonidas J. Guibas, **Curriculum DeepSDF**, *European Conference on Computer Vision (ECCV), pp. 51-67, 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:

- Conferences: ICME [2020, 2021, 2022], BMVC [2020, 2021, 2022], WACV [2021, 2022, 2023], IROS [2021], AAAI [2022, 2023], MICCAI [2022], ICPR [2022], MULA Workshop [2020, 2021, 2022], ECCV [2022].
- Journals: IJCV [2021], T.MM [2022], MM [2022], TPAMI [2022]

TECHNICAL SKILLS

Deep Learning Framework Tensorflow, Keras, PyTorch, Theano, Caffe
Programming Language C/C++, Python, MATLAB, Mathematica, Verilog,

INTERNSHIP

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*

RESEARCH EXPERIENCE

IRIS Computer Vision Lab, University of Southern California **Los Angeles, CA**
Research Assistant, Advisor: Prof. Ram Nevatia *Aug. 2019 - present*

- **Gait Recognition:** Identification with gait sequence.
- **Skeleton Action Recognition:** Action recognition from skeleton sequences from videos. [ICPR 2022]
- **Sentiment Analysis:** Self-supervised sentiment classification with multimodal matching. [ICASSP 2022]
- **Query Grounding:** Object localization and referring based on the query relevant with the image. [WACV 2021, TAC 2020]
- **Mesh Reconstruction:** Improved the performance of reconstruction of 3D mesh from SDF value [ECCV 2020]
- **Referring Relationship:** Relationship analysis for the objects detected in the same image. [CVPRW 2020]

Lab 126, Amazon. **Bellevue, WA**
Applied Scientist Intern, Advisor: Dr. Yuyin Sun *May. 2022 - Aug. 2022*

- **Multimodality NeRF:** NeRF reconstruction with multimodality input.
- **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 3^{rd} 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.

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.

AWARDS AND HONORS

Outstanding Undergrad Thesis	2019
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