Huan LEI

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RESEARCH INTERESTS

Geometric deep learning for 3D data; Self-supervised learning for 3D vision (I would love to collect my own data for this purpose); Computational geometry for mesh triangulation and deformation; Shape analysis; High-level (dynamic) scene parsing in 3D vision; Multi-media applications involving 3D data with other data modalities (e.g. audios, texts); Adversarial machine learning; Medical image processing; Relational networks.

EDUCATION

The University of Western Australia   Perth, WA

PhD in Computer Science and Software Engineering   Aug/2017 – Aug/2020

Supervisors: Prof. Ajmal Mian; Dr. Naveed Akhtar.

ACADEMIC EXPERIENCE

The Australian National University   Canberra, ACT

Surface reconstruction with geometric deep learning   Feb/2022 – Now

The University of Western Australia   Perth, WA

Geometric feature learning on mesh representations   Aug/2021 – Dec/2021

PREPRINTS

[1] **Huan LEI**, Naveed Akhtar, Mubarak Shah, Ajmal Mian. Geometric Feature Learning for 3D Meshes. *Under Review*, https://arxiv.org/abs/2112.01801.

[2] **Huan LEI**, Naveed Akhtar, and Ajmal Mian. Spherical convolutional neural network for 3D point clouds. arXiv preprint arXiv:1805.07872, 2018.

PUBLICATIONS

[1] **Huan LEI**, Naveed Akhtar, Ajmal Mian. Picasso: A CUDA-based Library for Deep Learning over 3D Meshes, **CVPR**, 2021. [paper], [code].

[2] **Huan LEI**, Naveed Akhtar, Ajmal Mian. SegGCN: Efficient 3D Point Cloud Segmentation with Fuzzy Spherical Kernel, **CVPR**, 2020. [paper], [code].

[3] **Huan LEI**, Naveed Akhtar, Ajmal Mian. Spherical Kernel for Efficient Graph Convolution on 3D Point Clouds, **TPAMI**, March 2020. [paper], [code].

[4] **Huan LEI**, Naveed Akhtar, Ajmal Mian. Octree guided CNN with Spherical Kernels for 3D Point Clouds, **CVPR**, 2019. [paper], [code].

[5] **Huan LEI**, Guang Jiang, Long Quan. Fast Descriptors and Correspondence Propagation for Robust Global Point Cloud Registration, **TIP**, 2017. [paper], [code].

As per Google Scholar metrics, **CVPR** is ranked 4th among all publications (journals and conferences) in English, just below Science https://scholar.google.com/citations?view_op=top_venues&hl=en. CVPR is the most impactful venue in the category of "Engineering and Computer Science". **TPAMI** is the highest ranked journal in the area of "Computer Vision and Artificial Intelligence", with an impact factor of 16.389 in the year 2020.

TECHNICAL SKILLS

Programming: CUDA C, Python, C/C++, MATLAB (with mex)

Libraries: Tensorflow, Pytorch, Picasso (**ours**), Open3D, OpenCV, PCL.