Moonjun Gong

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Education

Beijing University of Posts and Telecommunications (BUPT) Beijing, China
Bachelor of Artificial Intelligence; ***GPA: 3.42/4.00*** *Expected July 2024*

Publications

[1] **Moonjun Gong***, Xinhao Liu*, Qi Fang, Haoyu Xie, Yiming Li, Hang Zhao, Chen Feng. "Occ4cast: LiDAR-based 4D Occupancy Completion and Forecasting" (Under Review, available on arvix: https://arxiv.org/abs/2310.11239)

[2] **Moonjun Gong***, Yiming Li*, Sihang Li*, Xinhao Liu*, Kenan Li, Nuo Chen, Zijun Wang, Zhiheng Li, Tao Jiang, Fisher Yu, Yue Wang, Hang Zhao, Zhiding Yu, Chen Feng. "SSCBench: Monocular 3D Semantic Scene Completion Benchmark in Street Views" (Under Review, available on arvix: https://arxiv.org/abs/2306.09001)

[3] Guoliang Xu, Jianqin Yin, Shaojie Zhang, **Moonjun Gong**. "MLP-AIR: An Effective MLP-Based Module for Actor Interaction Relation Learning in Group Activity Recognition" (Under Review)

Research Experience

Occupancy Completion and Forecasting from Point Clouds AI4CE Lab, New York University
Undergraduate researcher, advised by Professor Chen Feng *July 2023 – Sep 2023*

- We introduce the novel task of *Occupancy Completion and Forecasting*, which combines occupancy completion and occupancy forecasting in the context of autonomous driving.
- To enable supervision and evaluation, we curate a large-scale dataset termed *Occ4D* from public autonomous driving datasets.
- We explore existing and proposed baseline models and analyze their performance on our dataset.

Monocular 3D Semantic Scene Completion Benchmark AI4CE Lab, New York University
Undergraduate researcher, advised by Professor Chen Feng *Apr 2023 – Sep 2023*

- We introduce SSCBench, a comprehensive benchmark that integrates scenes from widely-used automotive datasets (e.g., KITTI-360, nuScenes, and Waymo).
- We benchmark models using monocular, trinocular, and point cloud input to assess the performance gap resulting from sensor coverage and modality.
- We have unified semantic labels across diverse datasets to simplify cross-domain generalization testing.

Actor Interaction Relation Learning in Group Activity Recognition COST Lab, BUPT
Undergraduate researcher, advised by Professor Jianqin Yin *Oct 2022 – Mar 2023*

- We propose a novel module: a universal MLP-based module for implicitly modeling Actor Interaction Relation (MLP-AIR), which has a competitive but simple module design solution
- We reproduce three representative methods with MLP-AIR to evaluate our module. Moreover, we conduct extensive experiments on two widely used benchmarks, including the Volleyball and Collective Activity datasets to evaluate the performance of MLP-AIR.

Human Motion Prediction COST Lab, BUPT
Undergraduate researcher, advised by Professor Jianqin Yin *Mar 2022 – Oct 2022*

- Reproduced the TrajectoryCNN, originally developed in Tensorflow, in PyTorch. TrajectoryCNN is an end-to-end network introduced in the paper titled "TrajectoryCNN: A New Spatio-Temporal Feature Learning Network for Human Motion Prediction".
- Trained the model on H3.6M, CMU and 3DPW dataset, compared the results with the paper and designed optimization ideas.

Skills

Programming: C, C++, Python (PyTorch, Tensorflow)

Languages: English (TOEFL 103), Mandarin (Native), Korean (Native)