

MOYANG LI

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EDUCATION

ETH Zurich, Switzerland

September 2023 - now

MSc in Computational Science and Engineering

Huazhong University of Science and Technology, China

September 2017 - June 2021

Bachelor Thesis: Transformer-based Emotion Recognition with EEG Signals.

B.E. in Automation, GPA: 3.92/4.0

SELECTED PROJECTS

Novel View Synthesis with Sparse Inputs

Advisor: Prof. Peidong Liu

August 2022 - October 2022

- Proposed a geometric regularization loss by exploiting the multi-view consistency property to reconstruct the correct geometric structure for few-shot novel view synthesis based on neural radiance fields (NeRF).
- Incorporated appearance loss by restricting the color of the same surface points seen from slightly different views to be the same. Designed geometry loss to provide approximate depth supervision through triangulation between two views given the depth estimated by NeRF in one view.
- Achieved comparable performance on the real-world multi-view datasets DTU compared with the state-of-the-art approach InfoNeRF.
- Our proposed regularization is also a plug-and-play method for boosting the performance of existing neural implicit representation techniques.

Class Imbalance Alleviation with Data Augmentation and Bias Compensation

Advisor: Prof. Dongrui Wu

January 2022 - April 2022

- Utilized the minority-favorable data augmentation strategy through a modification on SMOTE to generate balanced training sets.
- Motivated by the optimal hyperplane for class-balanced distribution, modified standard cross-entropy loss to compensate for the bias caused by class imbalance.
- Introduced Range Loss to reduce the intra-class variations and enlarge the inter-class distance for imbalanced datasets. Achieved the average performance improvement for varied imbalance ratios on tail classes and whole testing samples by 18.27% and 6.51% respectively.

RESEARCH EXPERIENCE

Computer Vision and Geometric Learning Lab (CVGL), Westlake University

China

Intern, Advisor: Prof. Peidong Liu

June 2022 - August 2023

- Literature review on camera rolling shutter effect correction, NeRF-SLAM, event-based visual odometry, etc.
- Constructed event-based SLAM system with NeRF.

PUBLICATIONS

- Moyang Li***, Peng Wang*, Lingzhe Zhao, Bangyan Liao, and Peidong Liu. USB-NeRF: Unrolling Shutter Bundle Adjusted Neural Radiance Fields. In *Proc. of the International Conf. on Learning Representations (ICLR)*, 2024. [paper][code][video]

SELECTED AWARDS

- Outstanding Graduate June 2021
- Study Excellence Scholarship (top 10%) August 2018

SKILLS AND INTERESTS

Research Interests: Generative Models, 3D Reconstruction, SLAM, Event-based Vision

Programming Languages: Python, C/C++, Matlab

Tools and Frameworks: PyTorch, Git, L^AT_EX