



Education

Information & Communication Engineering

MPhil Student in School of Computer and Information Technology

- Advised by Prof. Yao Zhao (IEEE/IET Fellow), Research interest in Image and Video Restoration.

Beijing Jiaotong University

Sept. 2021 - Present

Software Engineering

B.Eng. in School of Software Engineering (with honors)

Finance (Dual Degree)

B.Ec. in School of Economics and Management

Beijing Jiaotong University

Sept. 2017 - Jun. 2021

Beijing Jiaotong University

Sept. 2018 - Jun. 2021

Publications

Semantic Lens: Instance-Centric Semantic Alignment for Video Super-Resolution

CCF-A

Qi Tang, Yao Zhao, Meiqin Liu*, Jian Jin, and Chao Yao*

Feb. 2024

- AAAI Conference on Artificial Intelligence (AAAI), 2024.

BridgeNet: A Joint Learning Network of Depth Map Super-Resolution and Monocular Depth Estimation

CCF-A

Qi Tang, Runmin Cong*, Ronghui Sheng, Lingzhi He, Dan Zhang, Yao Zhao, and Sam Kwong

Oct. 2021

- ACM International Conference on Multimedia (ACM MM), 2021.

Award

National Scholarship for Graduate Excellence, top 1/50

2023

Experiences

Research on Joint Depth Map Super-Resolution and Monocular Depth Estimation Algorithm

*Institute of Information Science, Beijing Jiaotong University
Beijing Key Laboratory of Advanced Information Science and Network Technology*

Principal Investigator

Dec. 2020 - Jun. 2021

- Existing color-guided depth map super-resolution methods usually necessitate an extra branch to extract high-frequency information from RGB image to guide the low-resolution depth map restoration. However, there are still some differences between the two modalities, direct information transmission in the feature dimension or edge map dimension cannot achieve satisfactory result, and may even trigger texture copying in areas where the structures of the RGB-D pair are inconsistent. Inspired by the multi-task learning, we propose a joint learning network of depth map super-resolution (DSR) and monocular depth estimation (MDE) without introducing additional supervision labels.
- The project is the recipient of the Excellent Undergraduate Graduation Design (Thesis) of Beijing Ordinary Colleges and Universities.** A paper is accepted by ACM International Conference on Multimedia. The patent application for invention entering the substantive examination stage (**A Method of Depth Map Super-Resolution joint Monocular Depth Estimation**, application number: 202110803976.2).
- Implement based on Python, PyTorch, MindSpore

3D Reconstruction of High-Speed Rail-Wheel Based on Coded Structured Light

*School of Computer and Information Technology, Beijing Jiaotong University
Institute of Intelligent Inspection and Monitoring for Rail Transit*

Principal Investigator

Apr. 2019 - Jul. 2020

- The wheel-rail attitude of high-speed railway reflects the complex dynamic interaction and restraint relationship between wheels and rails. Obtaining high-precision high-speed railway wheel-rail attitude is of great significance for ensuring the safe operation of high-speed railways. This project is based on machine vision theory and methods, and focuses on the 3D reconstruction method of high-speed rail wheel-rail attitude based on coded structured light.
- The project is supported by National Training Program of Innovation and Entrepreneurship for Undergraduates.** We adopt the method of coded structured light based on space codification, projecting a single pattern on the surface of the wheel and track, improving the accuracy of feature point extraction and recognition. And we combine De Bruijn analysis with wavelet transform analysis, increasing the density of point cloud and realizing the dense reconstruction by a single shot. The development of 3D reconstruction software based on coded structured light, offering a platform for the 3D reconstruction based on active vision, visualization and editing of point cloud data, and is applied for a software copyright (**Structured Light 3D Reconstruction Software V1.0**, registration number: 2022SR0655971).
- Development based on C++, OpenCV, PCL, QT

Skills

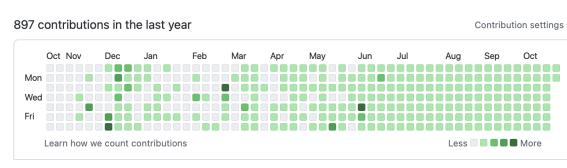
Programming Python, JAVA, C, C++

ML Framework PyTorch, TensorFlow, MindSpore, PaddlePaddle

Data Manage SQL and some NoSQL

Lib. or Tools LATEX, MATLAB, PowerPoint, etc.

Languages Chinese, English (CET-6 547)



2022 Github Commit Records