JIANHUI ZHANG

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Homepage: https://freekatz.github.io

RESEARCH INTERESTS

Computer Vision

EDUCATION

Southwest University, *M.E. Computer Technology*   *Advisor: Prof. Zhiming Liu*   2020.09 - 2023.06
- Research Direction: Blockchain Technology

Chongqing University, *B.S. Information Security*   2016.09 - 2020.06

RESEARCH EXPERIENCE

Blind Face Restoration

University of Science and Technology of China   2024.12 - 2025.01
- Research and reproduce works like VAR, CodeFormer, RestoreFormer, etc., and adapt the FFHQ dataset
- Migrate autoregressive image generation to BFR task by replacing VAR model label input with LQ tokens

3D Point Cloud Segmentation

University of Science and Technology of China   2024.07 - 2024.11
- Research and reproduce relevant works, and explore other fields like Gaussian Splatting to find core innovations
- Implement the Backbone and algorithms like Camera, KDTree, and adapt models to 5 datasets across 3 tasks
- Conduct comparative and ablation experiments to tune model and algorithm, and participate in paper writing

PUBLICATIONS

CamPoint: Boosting Point Cloud Segmentation with Virtual Camera   CVPR 2025

Jianhui Zhang, Luo Yizhi, Zicheng Zhang, Xuecheng Nie, Bonan Li

The article introduces CamPoint, which employs **Camera Visibility Feature(CVF)** to encode points as feature vector via virtual cameras, representing the visibility from multiple camera views. Innovations include:

- **Camera Perspective Slice Distance(CPSD)**: Identifies semantically related neighbors rather than just spatially closest points to enhance local feature aggregation
- **Camera Parameter Embedding(CPE)**: Integrates camera prior features into point representations to enhance global information perception

Experimental results show that CamPoint achieves SOTA performance on multiple datasets (e.g., 83.3% mIoU on S3DIS, 77.7% mIoU on ScanNetV2), with fewer parameters, lower training costs, and faster inference speed

PORJECTS

Research on Optimization Methods and Algorithms for Pipeline Transportation Schemes

PetroChina Southwest Oil & Gasfield Company   2023.12 - 2024.11

Project integrates GIS and AI technologies to address the intelligent planning of oil and gas pipeline networks

- Constructed a 7-class geographic semseg dataset from 19-level orthoimages, covering over 200km² and 16GB
- Completed the data augmentation, and implemented the image semseg using U-Net with over 93% mAcc

WORK EXPERIENCE

ByteDance, *Volcano Engine*, *Backend Developer*   2023.07 - 2024.05
- Develop Redis control components such as Configserver, and led multiple P0 changes with zero failures
- Develop Redis observability components such as Redis-Agent, led monitoring and alerting design

TECHNICAL SKILLS

- Programming: Python(Pytorch, Timm, Diffusers, etc.), Golang, Java, C, C++, Shell
- Others: Blockchain, Databases, Cloud-Native, and tools such as Git, Postman, etc.