# Zujin Guo

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## Education

**Nanyang Technological University**                                      Aug 2021 – Jan 2023
Master of Science in Artificial Intelligence; GPA: 4.4/5.0

**Xi'an Jiaotong University**                                          Sept 2016 – June 2020
Bachelor of Engineering in Automation; GPA: 83.81/100

## Experience

**Research Engineer**, Nanyang Technological University – Singapore          Mar 2023 – Present
- Exploring generative priors from video diffusion models for applications in visual tasks.
- Proposed a generalizable implicit motion modeling method for the video frame interpolation task.

**Research Intern**, MEGVII – Beijing, China                          Mar 2021 – June 2021
- Investigated pre-text tasks in video self-supervised learning for action recognition.

**Algorithm Engineer Intern**, Apon Medical – Shanghai, China           Feb 2020 – Jan 2021
- Worked on several medical projects including medical instrument monitoring, apnea detection and facial-expression-based pain-level classification.

## Research Projects

**Video Frame Interpolation** | MMLab@NTU                              Apr 2023 - Feb 2024
Advised by Dr. Wei Li, Prof. Chen Change Loy.
- Investigated and identified the challenges of the video frame interpolation task.
- Proposed an effective motion modeling paradigm for video frame interpolation, characterized by a novel Generalizable Implicit Motion Modeling (GIMM) framework.
- Conducted experiments and ablation studies for the proposed method in motion modeling and in interpolation.
- This work is accepted by NeurIPS 2024.

**Related Anything** | MMLab@NTU                                              Apr 2023
Collaborated with Bo Li, Jingkang Yang and Zijian Zhou.
- Built the first Relate Anything Model (RAM) demo which predict the relations of any segmented object pairs, in the light of the Segment Anything Model.

**Panoptic Scene Graph** | MMLab@NTU                                   Nov 2021 - Mar 2022
Collaborated with Jingkang Yang and Yizhe Ang.
- Proposed the Panoptic Scene Graph (PSG) Generation Task for scene understanding.
- Established new datasets, benchmarks, baselines and a codebase for the task.
- This work is accepted by ECCV 2022.

**Pre-text tasks for Video self-supervised learning** | MEGVII          Mar 2021 - June 2021
Advised by Dr. Pengkun Zheng.
- Investigated self-supervised learning frameworks, *e.g.*, MoCo, SimCLR, BYOL.
- Explored potential supervisions and pre-text tasks for effective representation learning.
- Proposed video acceleration prediction as a pre-text task for self-supervised learning.

## Publications

1. **Zujin Guo**, Wei Li, Chen Change Loy. Generalizable Implicit Motion Modeling for Video Frame Interpolation. In *Advances in Neural Information Processing Systems* (NeurIPS), 2024.

2. Jingkang Yang, Yi Zhe Ang, **Zujin Guo**, Kaiyang Zhou, Wayne Zhang and Ziwei Liu. Panoptic Scene Graph Generation. In *European Conference on Computer Vision* (ECCV), 2022.

3. Jingkang Yang, Wenxuan Peng, Xiangtai Li, **Zujin Guo**, Liangyu Chen, Bo Li, Zheng Ma, Wayne Zhang, Kaiyang Zhou, Chen Change Loy, Ziwei Liu. Panoptic Video Scene Graph Generation. In *Computer Vision and Pattern Recognition* (CVPR), 2023.

4. Jinghao Wang, Zhengyu Wen, Xiangtai Li, **Zujin Guo**, Jingkang Yang, Ziwei Liu. Pair then Relation: Pair-Net for Panoptic Scene Graph Generation. In *IEEE Transactions on Pattern Analysis and Machine Intelligence* (TPAMI), 2024.

## Academic Service & Skills

**Conference/Journal Reviewer:** CVPR, ECCV, NeurIPS, AAAI, ICLR, IJCV.
**Programming:** Python (PyTorch), HTML, Java, MATLAB, C
**Language:** Mandarin Chinese (Native), English (Fluent, IELTS 7/6.5), French (Conversational)