Mr. Wu Size

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Education

Nanyang Technological University (NTU) *Singapore, Singapore*
Ph.D. student in School of Computer Science and Engineering Jan 2022—Present

University of Science and Technology of China (USTC) *Hefei, China*
Bachelor of Electronic and Information Engineering (AI) Aug 2017—Jun 2021
GPA: 3.8/4.3 (Ranking Top 10%)

Research Interests

Open-vocabulary Visual Recognition; Object Detection; Foundation Models; Multi-view Human Pose Estimation

Papers & Patents

[1] **Size Wu**, Wenwei Zhang, Sheng Jin, Wentao Liu, and Chen Change Loy. Aligning bag of regions for open-vocabulary object detection. In *CVPR*, 2023.

[2] **Size Wu**, Sheng Jin, Wentao Liu, Lei Bai, Chen Qian, Dong Liu, and Wanli Ouyang. Graph-based 3d multi-person pose estimation using multi-view images. In *ICCV*, 2021.

[3] Jiahang Wang, **Size Wu**, Sheng Jin, Wentao Liu, and Chen Qian. Object detection method, device, electronic equipment and storage medium, 2022. Chinese Invention Patent, CN115131705A.

[4] **Size Wu**, Sheng Jin, Wentao Liu, and Chen Qian. 3d keypoint detection method, device, electronic equipment and storage medium, 2021. Chinese Invention Patent, CN113610967A.

[5] **Size Wu**, Sheng Jin, Wentao Liu, and Chen Qian. 3d human pose adjustment method, device, electronic equipment and storage medium, 2021. Chinese Invention Patent, CN113610966A.

Research Experience

Ph.D. Student **NTU**, Jan 2022—Present

- **Enhancing Region Representation for Open-Vocabulary Object Detection**: Propose cheep and effective methods to improve region representation in the vision-language alignment. **Two papers submitted to ICCV 2023 and NeurIPS 2023, respectively.**
- **Aligning Bag of Regions for Open-vocabulary Object detection**: Propose to distill knowledge from pre-trained vision-language models (VLMs) on a bag of regions for open-vocabulary object detection (OVD). The method effectively exploits the VLMs' ability to represent co-existing and contextually related object concepts. It achieves state-of-the-art performance on multiple OVD benchmarks. **CVPR 2023. Code**.

Research Intern **SenseTime, Beijing**, Oct 2020—Dec 2021

- **Multi-view 3D Human Pose Estimation**: Propose three task-specific graph neural networks (GNNs) for multi-view human pose estimation. The GNNs efficiently match human centers, locate human locations and refine human pose estimations. The proposed method achieves state-of-the-art performance on CMU Panoptic and Shelf datasets with significantly lower computation complexity. **ICCV 2021. Code**.
- **Multi-view Multi-person Tracking**: Give solution to the Multi-camera Multiple People Tracking problem by aggregating geometric and appearance features. The method is applied into industrial projects. It also achieves the 3rd place in a challenge in the ICCV 2021 Multi-camera Multiple People Tracking Workshop.

National Innovation Training Program **USTC**, April 2019—Dec 2020

- **Image Colorization**: Use deep learning approach to automatically colorize gray-scale images. The techniques exploited in this project mainly include feature extraction/aggregation, self- attention mechanism, adversarial training, etc. **Code**.

Open-Source Project

MMPose Oct 2020—Present
I am one of the contributors to MMPose, an open-source project on GitHub for 2D and 3D human pose estimation. And I am the core developer of the multi-view 3D pose estimation in MMPose.

Core Qualifications

Programming: Python, C/C++, MATLAB
English: TOEFL 106/120, **GRE 337/340+4.0/6.0**

Awards and Honors

- AISG PhD Fellowship. 2023.
- Future Star Award. SenseTime. 2021.
- Outstanding Final Year Project **(Top5%)**. USTC. 2021.
- Honored Class for **Artificial Intelligence**. USTC. 2019—2021.
- Security AI Challenger: **Ninth Place Award (out of 36489 teams)**. Tianchi, Alibaba Cloud. 2021.
- AI Innovation and Application Competition: **Second Place Award**. CAICT. 2021.
- Multi-camera Multiple People Tracking Challenge: **Third Place** in Top-down View Track. ICCV 2021.
- National Encouragement Scholarship. USTC. 2018, 2019.
- Scholarship For Outstanding Students. USTC. 2018—2020.
- Talent Program in Information Science and Technology. USTC. 2017—2021.