Wenhao(Reself) Chai

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Education

- **University of Washington** — Seattle, WA
  Master of Science in Electrical Engineering — *Expected*
- **Zhejiang University** — Hangzhou, China
  Bachelor of Engineering in Civil Engineering; GPA: 3.74/4 — *Sep. 2019 – June. 2023*
- **University of Illinois Urbana-Champaign** — Urbana, IL
  International Visiting Program; GPA: 3.49/4 — *Jan. 2022 – Aug. 2022*

Internship Experience

- **Alibaba DAMO Academy** — Hangzhou, China
  Visiting Research Internship — *Sep. 2022*

Basic Information

- **Research Interests**: 3D Human Pose Estimation, Domain Adaptation, Multimodal Learning
- **Programming Skills**: Python, PyTorch v1.x, OpenMMLab

Research Proposal

My research began in exporing 3D human pose estimation, a task that estimates 3D joint positions of the human body from 2D information. I managed to implement a simple but effective unsupervised domain adaptation method to better meet the needs of real-world applications. Afterwards, I was introduced to the vibrant field of multimodal learning and attempted to publish a review in a journal. After experiencing several other research projects, I determined my research direction to be *human-related visual recognition and generation*. Currently, I am working to improve the **diffusion model**, an infinitely potential basic model. With extra **pose** information, I hope it can be more controllably used to **natural human image generation and editing**.

Publications

- **Global Adaptation meets Local Generalization: Unsupervised Domain Adaptation for 3D Human Pose Estimation** : 1^{st} author, under reviewed by CVPR′23
- **Weakly Supervised Two-Stage Training Scheme for Deep Video Fight Detection Model** : joint 1^{st} author, ICTAI′22
- **Automatic Spinal Ultrasound Image Segmentation and Deployment for Real-time Spine Volumetric Reconstruction** : 3^{rd} author, ICSU′22 best paper award
- **Deep Vision Multimodal Learning: Methodology, Benchmark, and Trend** : 1^{st} author, Applied Science (JCR Q2)
- **Machine Learning Methods for Drug Discovery: A Survey** : 2^{nd} author, minor revision by IEEE Transactions on Artificial Intelligence

Projects In Prograss

- **MMPM: Multi-task Mask Pose Modeling for Large-Scale Human Pose Pre-training** : 2^{nd} author
- **MOT-JD: Unsupervised Source-Free Multi-Object Tracking with Joint Distillation** : 2^{nd} author
- **Learning Discrimination from Contaminated Data: Multi-Instance Learning for Unsupervised Anomaly Detection** : 3^{rd} author, under reviewed by ICME′23
- **Synthetic Environments for Vision-based Structural Condition Assessment of Bridges** : joint 1^{st} author
- **Diffusion-based Unsupervised Appearance Transfer for Clothe Generation** : 2^{nd} author