Wei Mao, XR Vision Labs, Canberra

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Research Experiences

2024-now   🔖 **3D AIGC @ XR Vision Labs**

- Design and train large diffusion models for generating 3D objects/characters.

- Develop algorithms to rig and animate the generated characters.

2018-2024   🔖 **PhD and Postdoc @ ANU**

- Worked on: neural rendering, human motion generation/prediction, human-scene/hand-object interaction, and 3D reconstruction.

- Published more than ten top conference papers, five of which were selected as ORAL/Spotlight.

Education

2018 – 2023   🔖 **Ph.D., Australian National University, Canberra, Australia.**
Research topic: *3D Human Understanding*
Supervisor: Dr. Miaomiao Liu.
Working closely with Dr. Mathieu Salzmann from EPFL
Thesis: Human Motion Prediction: From Deterministic to Stochastic

2016 – 2018   🔖 **Master of Computing (advanced), Australian National University, Canberra, Australia.**
Specialisations: Artificial Intelligence

2009 – 2013   🔖 **Bachelor of Engineering, East China University of Science and Technology, Shanghai, China.**
Major: Information Engineering

Employment History

2024 – now   🔖 **Senior Research Scientist, XR Vision Labs, Tencent, Canberra, Australia.**
Working on: 3D AIGC for games.

2022 – 2024   🔖 **Postdoc, Australian National University, Canberra, Australia.**
Supervisor: Prof. Richard Hartley, Dr. Miaomiao Liu.

2013 – 2016   🔖 **Software Engineer,** Dongyuan Computer Automation Engineering Co.,Ltd., Shanghai, China

Publications

Journal Articles

1. **Mao, W.**, Liu, M., Salzmann, M., & Li, H. (2021). Multi-level motion attention for human motion prediction. *International Journal of Computer Vision (IJCV)*.

2. Yang, J., **Mao, W.**, Alvarez, J. M., & Liu, M. (2021). Cost volume pyramid based depth inference for multi-view stereo. *IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI)*.

Conference Proceedings

1. **Mao**, **W.**, Hartley, R., Mathieu, S., & Liu, M. (2024). *Neural sdf flow for 3d reconstruction of dynamic scenes.* The International Conference on Learning Representations (ICLR).

2. Wang, R., **Mao**, **W.**, Lu, C., & Li, H. (2024). *Towards high-quality 3d motion transfer with realistic apparel animation.* European Conference on Computer Vision (ECCV).

3. Xing, C., **Mao**, **W.**, & Liu, M. (2024). *Scene-aware human motion forecasting via mutual distance prediction.* European Conference on Computer Vision (ECCV).

4. Gao, H., **Mao**, **W.**, & Liu, M. (2023). *Visfusion: visibility-aware online 3d scene reconstruction from videos.* Conference on Computer Vision and Pattern Recognition (CVPR).

5. Wang, R., **Mao**, **W.**, & Li, H. (2023a). *Deepsimho: stable pose estimation for hand-object interaction via physics simulation.* Neural Information Processing Systems (NeurIPS).

6. Wang, R., **Mao**, **W.**, & Li, H. (2023b). *Interacting hand-object pose estimation via dense mutual attention.* Winter Conference on Applications of Computer Vision (WACV).

7. **Mao**, **W.**, Liu, M., Hartley, R., & Salzmann, M. (2022). *Contact-aware human motion forecasting.* Advances in Neural Information Processing Systems (NeurIPS) Spotlight.

8. **Mao**, **W.**, Liu, M., & Salzmann, M. (2022). *Weakly-supervised action transition learning for stochastic human motion prediction.* Conference on Computer Vision and Pattern Recognition (CVPR) ORAL.

9. **Mao**, **W.**, Liu, M., & Salzmann, M. (2021). *Generating smooth pose sequences for diverse human motion prediction.* International Conference on Computer Vision (ICCV) ORAL.

10. **Mao**, **W.**, Liu, M., & Salzmann, M. (2020). *History repeats itself: human motion prediction via motion attention.* European Conference on Computer Vision (ECCV).

11. Yang, J., **Mao**, **W.**, Alvarez, J. M., & Liu, M. (2020). *Cost volume pyramid based depth inference for multi-view stereo.* Conference on Computer Vision and Pattern Recognition (CVPR) ORAL.

12. **Mao**, **W.**, Liu, M., Salzmann, M., & Li, H. (2019). *Learning trajectory dependencies for human motion prediction.* International Conference on Computer Vision (ICCV) ORAL.

Teaching

2023   **Guest Lecturer:** Advanced Computer Vision (ENGN8501), ANU.

2022   **Guest Lecturer:** Advanced Computer Vision (ENGN8501), ANU.

2021   **Tutor:** Artificial Intelligence (COMP3620), Computer Vision (ENGN6528), ANU.

2019   **Tutor:** Computer Vision (ENGN6528), ANU.

2018   **Tutor:** Artificial Intelligence(COMP3620), Relational Database (COMP6240), ANU.

2017   **Tutor:** Relational Database (COMP6240), ANU.

Academic Service

Reviewer   **CVPR:** 2021,2022,2023; **ICCV:** 2021,2023; **IJCAI:** 2022,2023; **ICML:** 2022,2023; **NeurIPS:** 2021,2022; **RAL:** 2021,2022,2023; **ICLR:** 2024.

Honour

NeurIPS22 Top Reviewer, CVPR22 Outstanding Reviewer, ICCV19 Travel Award