Xiaoxuan Ma

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Education

Ph.D. Candidate in Computer Science *09 / 2021 – 07 / 2025 (expected)*
School of Computer Science, Peking University
Advisor: Prof. Yizhou Wang

M.S. in Computer Science *09 / 2018 – 07 / 2021*
School of Electronics Engineering and Computer Science, Peking University
Advisor: Prof. Yizhou Wang

B.S. in Computer Science *09 / 2014 – 07 / 2018*
School of Electronics Engineering and Computer Science, Peking University

Research Interest

- Computer Vision, Human Modeling
- Cognitive Computing, Animal Behavior Understanding

Work Experience

Research Intern *01 / 2022 – 08 / 2022*
Intelligent Multimedia Group, Microsoft Research Asia (MSRA)
Host: Chunyu Wang

- 3D Human Modeling

Journal Publications

1. VMarker-Pro: Probabilistic 3D Human Mesh Estimation from Virtual Markers. IEEE Transactions on Pattern Analysis and Machine Intelligence **(IEEE-TPAMI)**, 2025.
   Xiaoxuan Ma, *Jiajun Su, Yuan Xu, Wentao Zhu, Chunyu Wang, Yizhou Wang.*
2. Human Motion Generation: A Survey. IEEE Transactions on Pattern Analysis and Machine Intelligence **(IEEE-TPAMI)**, vol. 46 (4), pp 2430-2449, 2024. **(IF=20.8)**
   Wentao Zhu,* **Xiaoxuan Ma****, Dongwoo Ro*, Hai Ci, Jinlu Zhang, Jiaxin Shi, Feng Gao, Qi Tian, Yizhou Wang.*
3. Locally Connected Network for Monocular 3D Human Pose Estimation. IEEE Transactions on Pattern Analysis and Machine Intelligence **(IEEE-TPAMI)**, vol. 44(3), pp. 1429-1442, 2022. **(IF=23.6)**
   Hai Ci,* **Xiaoxuan Ma****, Chunyu Wang, Yizhou Wang.*

* equal contribution. † students mentored by me.

Conference Publications

1. Real-time Holistic Robot Pose Estimation with Unknown States. European Conference on Computer Vision **(ECCV)**, 2024. 22 Stars
   Shikun Ban†, Juling Fan†, **Xiaoxuan Ma**, *Wentao Zhu, Yu Qiao, Yizhou Wang.*
2. ScoreHypo: Probabilistic Human Mesh Estimation with Hypothesis Scoring. IEEE/CVF Conference on Computer Vision and Pattern Recognition **(CVPR)**, 2024. 23 Stars
   Yuan Xu†, **Xiaoxuan Ma**, *Jiajun Su, Wentao Zhu, Yu Qiao, Yizhou Wang.*
3. Scaling Up Dynamic Human-Scene Interaction Modeling. IEEE/CVF Conference on Computer Vision and Pattern Recognition **(CVPR)**, 2024. 139 Stars
   Nan Jiang, Zhiyuan Zhang*, Hongjie Li,* **Xiaoxuan Ma**, *Zan Wang, Yixin Chen, Tengyu Liu, Yixin Zhu, Siyuan Huang.*
4. ChimpACT: A Longitudinal Dataset for Understanding Chimpanzee Behaviors. Thirty-seventh Conference on Neural Information Processing Systems **(NeurIPS)**, 2023. 18 Stars
   Xiaoxuan Ma*, *Stephan P. Kaufhold*, Jiajun Su*, Wentao Zhu, Jack Terwilliger, Andres Meza, Yixin Zhu, Federico Rossano, Yizhou Wang.*
5. Social Motion Prediction with Cognitive Hierarchies. Thirty-seventh Conference on Neural Information Processing Systems **(NeurIPS)**, 2023. 32 Stars
   Wentao Zhu, Jason Qin*†, Yuke Lou†, Hang Ye†,* **Xiaoxuan Ma**, *Hai Ci, Yizhou Wang.*
6. Learning Human Motion Representations: A Unified Perspective. IEEE/CVF Conference on Computer Vision and Pattern Recognition **(ICCV)**, 2023. 1.1k Stars
   Wentao Zhu, **Xiaoxuan Ma**, *Zhaoyang Liu, Libin Liu, Wayne Wu, Yizhou Wang.*
7. 3D Human Mesh Estimation from Virtual Markers. IEEE/CVF Conference on Computer Vision and Pattern Recognition **(CVPR)**, 2023. 262 Stars
   Xiaoxuan Ma, *Jiajun Su, Chunyu Wang, Wentao Zhu, Yizhou Wang.*
8. GFPose: Learning 3D Human Pose Prior with Gradient Fields. IEEE/CVF Conference on Computer Vision and Pattern Recognition **(CVPR)**, 2023. 127 Stars
   Hai Ci, Mingdong Wu, Wentao Zhu, **Xiaoxuan Ma**, *Hao Dong, Fangwei Zhong, Yizhou Wang.*
9. Virtual Pose: Learning Generalizable 3D Human Pose Models from Virtual Data. European Conference on Computer Vision **(ECCV)**, 2022. 66 Stars
   Jiajun Su, Chunyu Wang, **Xiaoxuan Ma**, *Wenjun Zeng, Yizhou Wang.*
10. Context Modeling in 3D Human Pose Estimation: A Unified Perspective. IEEE/CVF Conference on Computer Vision and Pattern Recognition **(CVPR)**, 2021. 48 Stars
    Xiaoxuan Ma*, *Jiajun Su*, Chunyu Wang, Hai Ci, Yizhou Wang.*
11. Optimizing Network Structure for 3D Human Pose Estimation. IEEE/CVF Conference on Computer Vision and Pattern Recognition **(ICCV)**, 2019. 42 Stars
    Hai Ci, Chunyu Wang, **Xiaoxuan Ma**, *Yizhou Wang.*

* equal contribution. † students mentored by me.

Preprints

1. AlphaChimp: Tracking and Behavior Recognition of Chimpanzees. arXiv preprint arXiv:2410.17136.
   Xiaoxuan Ma*, *Yutang Lin*, Yuan Xu, Stephan P. Kaufhold, Jack Terwilliger, Andres Meza, Yixin Zhu, Federico Rossano, Yizhou Wang.*
2. SAT-HMR: Real-Time Multi-Person 3D Mesh Estimation via Scale-Adaptive Tokens. arXiv preprint arXiv:2411.19824. 40 Stars
   Chi Su†, **Xiaoxuan Ma**, *Jiajun Su, Yizhou Wang.*

3. FreeCloth: Free-form Generation Enhances Challenging Clothed Human Modeling. arXiv preprint arXiv:2411.19942.
   Hang Ye[†], **Xiaoxuan Ma**, *Hai Ci, Wentao Zhu, Yizhou Wang.*
4. Efficient Action Counting with Dynamic Queries. arXiv preprint arXiv:2403.01543.
   Zishi Li[*†], **Xiaoxuan Ma***, *Qiuyan Shang*[†], *Wentao Zhu, Hai Ci, Yu Qiao, Yizhou Wang.*

* equal contribution. [†] students mentored by me.

Selected Awards and Honors

- Outstanding Student, Peking University *2024*
- Industrial Bank Scholarship, Peking University *2024*
- Award for Scientific Research, Peking University *2023*
- The Third Prize Scholarship, Peking University *2023*
- Award for Scientific Research, Peking University *2022*
- Grand Prize of the 29^{th} Challenge Cup, Peking University *2021*
- Cushman & Wakefield Scholarship, Peking University *2020*
- Outstanding Student, Peking University *2020*
- Outstanding Undergraduate Thesis, Peking University *2018*

Professional Services

Journal Reviewer:
IEEE TPAMI, IJCV, IEEE TMM
Conference Reviewer:
CVPR (Since 2022), ECCV (Since 2022), NeurIPS (Since 2022), ICLR (Since 2022), AAAI (Since 2022), ICCV (Since 2023), ICML (Since 2024)
Workshop Organizer:
Program Co-Chair, CVPR 2025 5th Workshop on "CV4Animals: Computer Vision for Animal Behavior Tracking and Modeling"

Teaching

- PKU Turing Class of 2017 (Counselor) *2018 - 2021*
  - Advisor: Prof. Jiaying Liu
- Computational Vision (TA, Taught in English) *Fall 2019*
  - Instructor: Prof. Yizhou Wang from PKU
- Machine Learning for Time Series Analysis – Statistical Models and Deep Learning (TA, Taught in English) *Summer 2018*
  - Instructor: Prof. Yan Liu from USC
- Computation, Economics and Data Science (TA, Taught in English) *Summer 2018*
  - Instructor: Prof. Yang Cai from Yale

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