

Jian Wang

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SUMMARY OF MY RESEARCH WORKS

My work mainly aims at capturing human motion from head-mounted egocentric fisheye cameras, including learning human motion priors for robust and accurate human pose estimation. Furthermore, my recent works include (1) reconstructing photo-realistic human body from egocentric view with Gaussian Splatting; (2) human motion capture from multiple sensors; and (3) egocentric human motion capture with physical constraints.

Research Interest Egocentric Vision, Human Motion Capture, Human Motion Generation, Motion Diffusion Models.

EDUCATION

MAX PLANCK INSTITUTE FOR INFORMATICS

APRIL 2020 - MID 2024 (PROSPECT)

Ph.D. Student in Computer Vision and Computer Graphics

Supervisor: Christian Theobalt

INSTITUTE OF SOFTWARE, CHINESE ACADEMY OF SCIENCES

SEPTEMBER 2016 - JULY 2019

Master's Degree of Science in Engineering

Supervisor: Naijun Zhan

★ High Performance Scholarship in 2018 (Top 10%)

GPA: 3.68/4.00, Rank: 11/105

PEKING UNIVERSITY

SEPTEMBER 2012 - JULY 2016

Bachelor Degree of Science in Chemistry

GPA: 3.44/4.00, Rank: 40/154

★ Pioneer Scholarship in 2013 (Top 20%)

RESEARCH PAPERS

- [1] **Wang, J.**, Cao, Z., Luvizon, D., Liu, L., Sarkar, K., Tang, D., Beeler, T. and Theobalt, C., 2023. Egocentric Whole-Body Motion Capture with FisheyeViT and Diffusion-Based Motion Refinement. In *Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition*. (**CVPR**).
- [2] Akada, H., **Wang, J.**, Golyanik, V. and Theobalt, C., 2023. 3D Human Pose Perception from Egocentric Stereo Videos. In *Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition*. (**CVPR**).
- [3] Millerdurai, C., Akada, H., **Wang, J.**, Luvizon, D., Theobalt, C., and Golyanik, V., 2023. EventEgo3D: 3D Human Motion Capture from Egocentric Event Streams. In *Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition*. (**CVPR**).
- [4] **Wang, J.**, Luvizon, D., Xu, W., Liu, L., Sarkar, K. and Theobalt, C., 2023. Scene-aware Egocentric 3D Human Pose Estimation. In *Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition*. (**CVPR**).
- [5] Akada, H., **Wang, J.**, Shimada, S., Takahashi, M., Theobalt, C. and Golyanik, V., 2022, October. UnrealEgo: A new dataset for robust egocentric 3d human motion capture. In *European Conference on Computer Vision*. (**ECCV**).
- [6] **Wang, J.**, Liu, L., Xu, W., Sarkar, K., Luvizon, D. and Theobalt, C., 2022. Estimating egocentric 3d human pose in the wild with external weak supervision. In *Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition*. (**CVPR**).
- [7] **Wang, J.**, Liu, L., Xu, W., Sarkar, K. and Theobalt, C., 2021. Estimating egocentric 3d human pose in global space. In *Proceedings of the IEEE/CVF International Conference on Computer Vision*. (**ICCV Oral Presentation, top 5% in all submissions**).
- [8] **Wang, J.**, Zhong, Y., Li, Y., Zhang, C. and Wei, Y., 2019. Re-identification supervised texture generation. In *Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition*. (**CVPR**).

- [9] Chen, M., **Wang, J.**, An, J., Zhan, B., Kapur, D. and Zhan, N., 2019, August. NIL: learning nonlinear interpolants. In *International Conference on Automated Deduction. (CADE)*
- [10] **Wang, J.**, An, J., Chen, M., Zhan, N., Wang, L., Zhang, M. and Gan, T., 2020. From model to implementation: a network algorithm programming language. *Science China Information Sciences*, 63, pp.1-17.

RECENT PROJECTS (NOT PUBLICLY AVAILABLE)

EGOOMNIMOCAP: CAPTURING EGOCENTRIC MOTION FROM ARBITRARY SENSORS

- Enable arbitrary sensor setup for egocentric motion capture with masked transformer;
- Motion description for enhancing motion capture performance and LLM for downstream tasks;
- New capturing device based on Quest3.

EGO-DRIVEN AVATAR

- Drive pre-scanned avatar with egocentric motion with Deep Dynamic Character;
- Enhance the re-rendering quality with Gaussian Splatting;
- Further refine the Gaussian parameters with ego-view observation.

EVENTEGO3D: 3D HUMAN MOTION CAPTURE FROM EGOCENTRIC EVENT STREAMS

- Real-time egocentric motion capture from event cameras;
- Residual event propagation module for filtering out background events.

EXPERIENCES

RESEARCH INTERN 2019.11 - 2020.04

Max Planck Institute for Informatics

Performed Research in ego-centric motion capture.

RESEARCH INTERN 2018.06 - 2018.11

Face++ (Megvii Technology Ltd.)

Performed Research in 3D human body reconstruction and new methods to generate human textures from a single image.

RESEARCH INTERN 2017.10 - 2018.02

Institute of Automation, Chinese Academy of Sciences

Employed reinforcement learning algorithms for micro- and macro-management in the StarCraft combat environment.

SOFTWARE ENGINEER INTERN 2016.12 - 2017.06

Baidu Online Network Technology (Beijing) Co., Ltd.

Designed the table line detection algorithm and developed the table OCR system serving thousands of consumers.

MISCELLANEOUS

Invited Talks Joint Ego4D & EPIC workshop @ ICCV2021, CVPR 2022, and CVPR 2023

Reviewer Experience CVPR and ECCV

Teaching Experience Computer Vision and Machine Learning for Computer Graphics in 2021, 2022, and 2023