Jiaxi Jiang

PhD Candidate at ETH Zurich

Sensing, Interaction & Perception Lab
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Research Interests

My research agenda lies in building learning-based, physics-aware models for modeling, reconstructing, synthesizing, and understanding embodied agents—both virtual (e.g., digital characters, simulated humanoids) and real (e.g., humans, robots)—and their interactions with the environment from sparse and noisy observations. Specifically, I am interested in:

- **Human Motions**: Scalable 3D motion tracking and synthesis from multimodal data (e.g., video, text, wearables), with applications in robotics, animation, VR/AR, and healthcare.
- **Wearable Computing:** Motion capture and activity understanding from minimal wearable configurations, with applications in health monitoring, rehabilitation, and HCI.
- **Egocentric Vision:** Modeling and representation learning of human–scene interactions from egocentric vision to bridge perception, motion understanding, and embodied decision-making.
- **Embodied AI:** Learning robotic skills and interaction policies from human demonstrations and teleoperation, using learned world representations for perception, prediction, and control.

Education

12.2022 - 08.2026 (expected) **PhD Candidate in Computer Science**,
ETH Zurich, Switzerland,
Topic: Full-Body Human Motion Estimation from Sparse Signals,
Advisor: Prof. Christian Holz

10.2018 - 04.2021 **Master in Computational Engineering Science, with distinction, GPA 1.1/1.0**,
RWTH Aachen University, Germany,
Thesis: Flexible Blind JPEG Artifacts Removal (ICCV'21), completed at ETH Zurich,
Advisors: Prof. Kai Zhang, Prof. Radu Timofte, Prof. Luc Van Gool, Prof. Bastian Leibe

09.2020 - 04.2021 **IDEA League Research Exchange, GPA 6.0/6.0**,
ETH Zurich, Switzerland

09.2012 - 06.2016 **Bachelor in Engineering Mechanics, GPA 86/100**,
Nanjing University of Aeronautics and Astronautics (NUAA), China
Thesis: Dynamic Mesh Generation and Optimization based on Spring Analogy

Professional Experience

06.2025 - 12.2025 **Research Scientist Intern, Meta Reality Labs Research, Zurich, Switzerland**
Topic: Human Motion Reconstruction and Synthesis
Advisor: Dr. Federica Bogo

03.2022 - 11.2022 **Research Assistant, Max Planck Institute for Informatics, Saarbrücken, Germany**
Topic: Image Data Enhancement
Advisors: Dr. Dengxin Dai, Prof. Bernt Schiele

07.2021 - 01.2022 **Research Intern, ETH Zurich, Zurich**
Topic: Learning-based Computational Interaction for VR/AR
Advisor: Prof. Christian Holz

11.2019 - 06.2020 **Visiting Student Researcher, University of Hamburg, Hamburg, Germany**
Topic: Robotic Teleoperation based on Vision and IMU
Advisors: Dr. Shuang Li, Prof. Jianwei Zhang

05.2019 - 09.2019 **Research Intern, Max Planck Institute for Intelligent Systems, Tübingen, Germany**
Topic: Learning-based and Multi-Object Motion Segmentation and Tracking
Advisor: Prof. Jörg Stückler

Publications (*supervised projects)

ICCV 2025 **[11] Inter Inertial Poser: Multi-Human Motion Tracking from Sparse Inertial Sensors and Pairwise Inter-Sensor Distances**
*Ying Xue, **Jiaxi Jiang***, Rayan Armani, Dominik Hollidt, Yi-Chi Liao, Christian Holz*

IJCAI 2025 **[10] Human Motion Capture from Loose and Sparse Inertial Sensors with Garment-aware Diffusion Models**
*Andela Ilic, **Jiaxi Jiang***, Paul Streli, Xintong Liu, Christian Holz*

ECCV 2024 **[9] MANIKIN: Biomechanically Accurate Neural Inverse Kinematics for Human Motion Estimation**
***Jiaxi Jiang**, Paul Streli, Xuejing Luo, Christoph Gebhardt, Christian Holz*

ECCV 2024 **[8] EgoPoser: Robust Real-Time Egocentric Pose Estimation from Sparse and Intermittent Observations Everywhere**
***Jiaxi Jiang**, Paul Streli, Manuel Meier, Christian Holz*

NeurIPS 2024 **[7] EgoSim: An Egocentric Multi-view Simulator and Real Dataset for Body-worn Cameras during Motion and Activity**
*Dominik Hollidt, Paul Streli, **Jiaxi Jiang***, Yasaman Haghighi, Changlin Qian, Xintong Liu, Christian Holz*

SIGGRAPH 2024 **[6] Ultra Inertial Poser: Scalable Motion Capture and Tracking from Sparse Inertial Sensors and Ultra-Wideband Ranging**
*Rayan Armani, Changlin Qian, **Jiaxi Jiang***, Christian Holz*

UIST 2023 **[5] Structured Light Speckle: Joint Ego-Centric Depth Estimation and Low-Latency Contact Detection via Remote Vibrometry**
*Paul Streli, **Jiaxi Jiang**, Juliete Rossie, Christian Holz*

ECCV 2022 **[4] AvatarPoser: Articulated Full-Body Pose Tracking from Sparse Motion Sensing**
***Jiaxi Jiang**, Paul Streli, Huajian Qiu, Andreas Fender, Larissa Laich, Patrick Snape, Christian Holz*

CHI 2022 **[3] TapType: Decoding Ten-Finger Typing on Surfaces through Body Vibrations Coupling to the Wrist**
*Paul Streli, **Jiaxi Jiang**, Manuel Meier, Hugo Romat, Andreas Fender, Christian Holz*

ICCV 2021 **[2] Towards Flexible Blind JPEG Artifacts Removal**
***Jiaxi Jiang**, Kai Zhang, Radu Timofte*

IROS 2020 **[1] A Mobile Robot Hand-Arm Teleoperation System by Vision and IMU**
*Shuang Li, **Jiaxi Jiang**, Philipp Ruppel, Hongzhuo Liang, Xiaojian Ma, Norman Hendrich, Fuchun Sun, Jianwei Zhang*

Demonstrations

ECCV 2022 **[2] Demonstrating AvatarPoser for Full-Body Pose Tracking from Sparse Motion Sensing**
***Jiaxi Jiang**, Paul Streli, Huajian Qiu, Andreas Fender, Larissa Laich, Patrick Snape, Christian Holz*

CHI 2022 **[1] Demonstrating TapType for Mobile Ten-Finger Text Entry Anywhere**
*Paul Streli, **Jiaxi Jiang**, Manuel Meier, Hugo Romat, Andreas Fender, Christian Holz*

Reviewers

Computer Vision	CVPR, ICCV, ECCV, TIP
Computer Graphics	SIGGRAPH, SIGGRAPH Asia
Machine Learning	NeurIPS, ICLR, ICML, AAAI
HCI	CHI, UIST, IEEE VR

Skills

Programming	Python, C/C++, MATLAB
Tools	PyTorch, TensorFlow, ROS, Blender, Unity

Languages

Chinese	Native Speaker
English	C1 Certificate, RWTH Aachen, 2020
German	Goethe-Zertifikat C1, 2018

Awards

2023	**Spark Award Top 20 Nominee**. Award for the most promising invention at ETH Zurich.
2022	**Springorium Commemorative Coin.** Award for the best Master graduates at RWTH.
2013 - 2015	**Outstanding Student Scholarships**. Award for Bachelor students at NUAA.

Teaching

Spring 2026	**Egocentric Computer Vision: Perception and Understanding from the First-Person View**, *Lecturer, ETH Zurich*
Spring 2026	**Artificial Intelligence for Digital Characters**, *Teaching Assistant, ETH Zurich*
Spring 2025	**Egocentric Perception for Human-World Understanding**, *Lecturer, ETH Zurich*
Spring 2025	**Artificial Intelligence for Digital Characters**, *Teaching Assistant, ETH Zurich*
Autumn 2024	**Mixed Reality**, *Guest Lecturer, ETH Zurich*
Autumn 2024	**Computer Science I**, *Teaching Assistant, ETH Zurich*
Spring 2024	**Stochastics and Machine Learning**, *Teaching Assistant, ETH Zurich*
Autumn 2023	**Mixed Reality**, *Teaching Assistant, ETH Zurich*
Spring 2023	**Big Data for Engineers**, *Teaching Assistant, ETH Zurich*

Supervised Students

11.2025 – Now	**Qi Ma**, *Master Thesis on **Human-Object Interaction**, MSc in CS*, ETH Zurich
10.2024 – Now	**Liuxin Qing**, *Semester Thesis on **Egocentric Body Tracking**; Master Thesis on **RL-based Motion Control**, MSc in EE*, ETH Zurich
03.2025 – 09.2025	**Nicola Witzig**, *Bachelor Thesis on **RL-based Motion Tracking**, BSc in CS*, ETH Zurich
04.2024 – 03.2025	**Shuyue Wang**, *Master Thesis on **VR Game and Motion Capture**, MSc in CS*, ETH Zurich
04.2024 – 10.2024	**Chang-Jin Lee**, *Bachelor Thesis on **Avatar Rendering and Motion Retargetting**, BSc in CS*, ETH Zurich
04.2024 – 10.2024	**Andela Ilic**, *Master Thesis on **Garment-aware Inertial Body Tracking**, MSc in EE*, ETH Zurich; now PhD student at ETH Zurich
01.2024 – Now	**Ying Xue**, *Master Thesis on **LLM-guided Multi-Human Motion Generation**; Research Intern on **Sensor-based Motion Tracking**, MSc in CS*, ETH Zurich; now PhD student at ETH Zurich
09.2023 – 07.2024	**Changlin Qian**, *Research Intern on **Sensor-based Motion Tracking**, MSc in Robotics*, ETH Zurich; now software engineer at Meta
09.2023 – 03.2024	**Rayan Armani**, *Research Assistant on **Sensor-based Motion Tracking**, MSc in Robotics*, ETH Zurich; now software engineer at Apple
07.2023 – 01.2024	**Yasaman Haghighi**, *Research Intern on **Egocentric Motion Simulator**, MSc in EE*, EPFL; now PhD student at EPFL
05.2023 – 02.2024	**Xuejing Luo**, *Master Thesis on **Physics-based Motion Estimation**, MSc in Robotics*, ETH Zurich; now PhD student at Aalto University
03.2023 – 03.2024	**Xintong Liu**, *Master Thesis on **IMU Simulation**, MSc in Robotics*, ETH Zurich
03.2023 – 07.2023	**Filip Stanisic**, *Semester Thesis on **Inertial Navigation**, MSc in EE*, ETH Zurich
10.2021 – 01.2022	**Huajian Qiu**, *Master Thesis on **VR-based Motion Tracking**, MSc in CSE*, EPFL; now PhD student at University of Stuttgart