

Tairan Yin

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Experience

Postdoctoral Researcher

Universitat Polytècnica de Catalunya

Postdoctoral research focusing on various questions related to crowd simulation and virtual reality.

Barcelona, Spain

Mar 2025 - Today

Early Stage Researcher

INRIA

Doctoral candidate funded by the EU's MSCA grant under the CLIFE-ITN project

Rennes, France

Nov 2020 - Apr 2024¹

Keywords: computer animation, virtual reality, motion capture, crowd simulation

- Proposed a VR-based crowd motion data collection paradigm.
- Produced research papers published in peer-reviewed conferences and journals (IEEE VR/TVCG).
- Development of experimental virtual environments (Unity & SteamVR).
- Supervised the internship of a student majoring in animation production. [video]

Visiting Researcher

These visits occurred during my PhD program.

École Polytechnique

- Invited by the co-supervisor of my PhD thesis to share experiences.

Paris, France

Dec 2023

Golaem

- Conducted an initial exploration of data collected using the method I developed during my PhD for motion generation and style transfer.

Rennes, France

Dec 2022 - Jan 2023

Max-Planck Institute for Intelligent System

- Developed a VR motion capture solution for a Vicon-based capture hall.

Tübingen, Germany

Feb 2022 - May 2022

Computer Vision Engineer

HWA Create Gensim

Keywords: computer vision, 3D reconstruction, signed distance field (SDF)

- Implemented an SDF-based 3D rigid body reconstruction algorithm using depth map inputs.
- Developed a user interface for demo.
- Explored and evaluated several depth cameras.

Remote

Jun 2019 - Oct 2019

Research Assistant

State Key Laboratory of Virtual Reality Technology and Systems

Pursued a Master's degree

Keywords: Hand shape reconstruction, depth map, deep learning

- Proposed a method to reconstruct hand shape from depth maps using a graph convolutional network.
- Generated a synthetic training dataset.
- This research resulted in my master's thesis.

Beijing, China

Sep 2018 - June 2020

Research Intern

Institut Fresnel

Keywords: Surface reconstruction, Moving Least Square (MLS)

- Explored an MLS-based algorithm for reconstructing a surface from randomly sampled point clouds.

Marseille, France

July 2018 - Aug 2018

Publications

With or Without You: Effect of Contextual and Responsive Crowds on VR-based Crowd Motion Capture March 2024

Tairan Yin, Ludovic Hoyet, Marc Christie, Marie-Paule Cani, Julien Pettré

TVCG (IEEE VR 2024), *Honorable Mention for Best Journal Papers*

10.1109/TVCG.2024.3372038

The One-Man-Crowd: Single User Generation of Crowd Motions Using Virtual Reality March 2022

Tairan Yin, Ludovic Hoyet, Marc Christie, Marie-Paule Cani, Julien Pettré

TVCG (IEEE VR 2022), *Nominee for Best Journal Paper*

10.1109/TVCG.2022.3150507

Education

University of Rennes Rennes, France

PhD in Computer Science

Nov 2020 - April 2024

Thesis: The One-Man-Crowd: Towards Single-User Capture of Collective Motions Using Virtual Reality

Supervisors: Julien Pettré, Marie-Paule Cani, Ludovic Hoyet, Marc Christie

Beihang University Beijing, China

M.Eng. in Systems Engineering

Sep 2018 - June 2020

Thesis: 3D Reconstruction of Human Hand Pose and Shape Based on Depth Images (in Chinese)

Supervisors: Xukun Shen, Yong Hu

Ecole Centrale de Marseille Marseille, France

Generalist Engineer

Sep 2016 - June 2018

Participated in a double-degree exchange program.

Completed French generalist engineer courses and training

Beihang University Beijing, China

B.Sc. in Mathematics and Applied Mathematics

Sep 2013 - June 2016

Skills

Languages: English (fluent), French (fluent), Chinese (native)

Programming Languages: C#, Python, C++, Matlab

Libraries: PyTorch, OpenCV, OpenGL, OpenXR, Unity, CUDA, Eigen

Hardware Experiences: Virtual reality (SteamVR-based), motion capture (Xsens & Vicon), depth camera (Azure Kinect & Intel Realsense)

Others: Autonomy, collaboration, scientific writing

¹From May to August 2024, I received and prepared for a postdoctoral project at the University of California Riverside in the USA. Unfortunately, I could not pursue the project due to visa problems. Afterwards, I received a postdoc offer from Barcelona. It took me 5 months to accomplish the administration procedures before moving to Spain.