MIAOWEI WANG
Ph.D. Candidate

To Whom It May Concern,

It is an exciting time to be working in technology, as rapid advances in AI and automation continue to reshape how we work and think. I feel fortunate to contribute, even in a small way, to this transformation. My research spans the spectrum from computer vision and geometry to general motion and interaction, leading me to focus on dynamic reconstruction, 4D generation, and interactive world models—areas that are receiving increasing attention. My work has been recognized at leading venues, with publications at top conferences such as CVPR, ICCV, AAAI, and WACV.

At its core, my research is driven by a central question: how can we represent dynamic phenomena in ways that are **interactive, generative, compact, trackable, physically grounded, and generalizable**? This challenge is fundamental both for academic research and industrial applications in video generation and dynamic scene modeling. I am particularly inspired by the philosophical idea of Plato's cave: whether the dynamic worlds we observe are faithful representations of some underlying reality, and to what extent current large-scale datasets, AI models, and mathematical or physical formulations allow us to approach or explain that reality. This pursuit of truth drives my research—from dynamic reconstruction to generation, from rigid objects to diverse materials, from single human to general objects, and from single object motions to complex interactions in dynamic environments. This journey is long and challenging, yet it is inspiring to see so many fellow researchers contributing and exploring this path alongside me.

I am fortunate to have been advised by Dr. Amir Vaxman and Dr. Oisín Mac Aodha, and I am deeply grateful for their support in fostering an open academic environment, encouraging me to pursue what I believed was right, even when it differed from their main research. I also thank the researchers who shared their ideas and insights along the way, particularly Jason J. Corso (University of Michigan), Daniel Morris (Michigan State University), Changjian Li (University of Edinburgh), Changqing Zou, Weiwei Xu (Zhejiang University), and Mike Tamir (UC Berkeley). Before my PhD, I gained industrial experience at SenseTime, ManyCore, Kuaishou, and China Telecom, and during my PhD, I interned at Tencent LightSpeed. Moving between academia and industry has taught me that, beyond reputation, its scale, title, or salary, the most important factors are the people you meet and the work you choose to pursue. Inspired by this, I actively mentor and encourage young students to follow their passions and do what they believe is right, and I warmly welcome anyone to reach out and collaborate.

Just as video generation is transforming the work of traditional editors, Vibe coding is reshaping the way programmers work, and research itself is being disrupted—from GPT in NLP to Gemini in geometry and rendering. I never take my accumulated experience for granted and always maintain the mindset of a beginner, striving to learn something new every day. I hope that my current research framework can also be challenged and transformed. I genuinely enjoy the process of research itself, more than chasing paper publications. I once spent over a year studying a single problem and was pleased to see it adopted by several companies. I make an effort to avoid overworking, and in my free time I enjoy reading science fiction, exploring good food, hiking, playing soccer, and listening to country music.

Sincerely,
Miaowei Wang
School of Informatics
The University of Edinburgh
24 February 2026

MIAOWEI WANG

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Research Interests: dynamic reconstruction, 4D generation, and interactive world models

EDUCATION

The University of Edinburgh   10/2023-Now
• **Ph.D.** *in IPAB, School of Informatics*   • **Advisor:** Prof. Amir Vaxman and Prof. Oisín Mac Aodha
University of Michigan, Ann Arbor   09/2020-12/2021
• **Master of Science** *in Computer Vision, EECS*   • **Advisor:** Prof. Jason Corso
Beijing University of Posts and Telecommunications(BUPT)   09/2016-07/2020
• **Bachelor of Engineering** in *Telecommunication Engineering Talent Program*
• **GPA**: 89.3/100   **Department Rank:** Top 5%

PUBLICATIONS & PATENTS

• ***Miaowei Wang**, Qingxuan Yan, Zhi Cao, Yayuan Li, Oisín Mac Aodha, Jason J. Corso, Amir Vaxman. BiMotion: B-spline Motion for Text-guided Dynamic 3D Character Generation. Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition* (**CVPR**). *2026.*

• ***Miaowei Wang**, Jakub Zadrożny, Oisín Mac Aodha, Amir Vaxman. MotionPhysics: Learnable Motion Distillation for Text-Guided Simulation. The AAAI Conference on Artificial Intelligence* (**AAAI**). *2026.*

• ***Miaowei Wang**, Yibo Zhang, Weiwei Xu, Rui Ma, Changqing Zou, Daniel Morris. DecoupledGaussian: Object-Scene Decoupling for Physics-Based Interaction. Proceedings of the IEEE/CVF Conference on Computer Vision* (**CVPR**). *2025.*

• *Pukun Zhao, Longxiang Wang, **Miaowei Wang**, Chen Chen, Fanqing Zhou, Haojian Huang. EvoEmpirBench: Dynamic Spatial Reasoning with Agent-ExpVer. The AAAI Conference on Artificial Intelligence* (**AAAI**). *2025.*

• ***Miaowei Wang**, Changjian Li, Amir Vaxman. CanFields: Consolidating Diffeomorphic Flows for Non-Rigid 4D Interpolation from Arbitrary-Length Sequences. Proceedings of the IEEE/CVF International Conference on Computer Vision* (**ICCV**). *2025.*

• ***Miaowei Wang**, Daniel Morris. Self-Annotated Method and System for Removing Smeared Points.* **US Patent** *18/928,440. 2025.*

• ***Miaowei Wang**, Daniel Morris. Self-Annotated 3D Geometric Learning for Smeared Points Removal. Proceedings of the IEEE/CVF Winter Conference on Applications of Computer Vision* (**WACV**). *2024.*

• *Yi-Lin Liu, **Miaowei Wang**, Chun-Yu Bai, Tie-Jun Wang. Asymmetrical Bell State Analysis for Photon-Atoms Hybrid System. Science China Physics, Mechanics & Astronomy. 2019.*

HONORS & AWARDS

• PhD Scholarship, School of Informatics, University of Edinburgh   10/2023
• The 2nd Prize in Undergraduate Innovation & Entrepreneurship Competition (National level)   07/2019
• The National Encouragement Scholarship   11/2018
• The 3rd Prize in National Partial Division Undergraduate Physics Competition   12/2017
• Zhou Jiongpan Scholarship for Outstanding Performance   12/2017
• The 1st Prize in The Chinese Mathematics Competition (National level)   11/2017
• The 1st Prize in The Chinese Mathematics Competition Beijing Division   11/2017

PROFESSIONAL EXPERIENCE

Tencent LightSpeed   01/2026-Now
Motion Generation Internship, London, UK

• Researching a multi-object, interactive dynamic world model with explicit camera controls.

ManyCore Tech   03/2023-09/2023

Full-time Senior Researcher, Hangzhou, China
 • Developed diffusion-based tools for image generation and editing.
 • Researched model parallel training methods using multiple low-cost GPUs.

SenseTime   03/2022-05/2023

Full-time Researcher, Shenzhen, China
 • Studied map features and GPS data to predict user location intent.
 • Human behavior identification, detection, and tracking in intelligent security systems.

Michigan State University   05/2021-03/2022

Research internship at 3D vision lab in ECE
 • 3D geometric structure estimation of plants can be achieved through skeleton extraction
 • Development of a system to detect and eliminate smeared points in the ToF depth sensor.

China Telecom   09/2020-04/2021

Part-time Algorithm Internship, Beijing, China
 • Developed an industrial inspection system for accurate real-time 2D/3D defect detection.

DreamWid   09/2020-12/2020

Algorithm Internship, Beijing, China
• Took charge of the research of face reconstruction based on 3DMM methods.
• Undertook the algorithm design of 3D object reconstruction based on one consumer-level depth sensor.

Beijing Kuaishou Technology Co., Ltd   04/2020-07/2020

AI Internship, Beijing, China
 • Researched network pruning and lottery ticket theory, creating a gradient signal-to-noise ratio metric to improve generalization and identify lottery tickets.

MENTORING EXPERIENCE

Teaching Assistant, University of Edinburgh
 • CGGS: Computer Graphics — Geometry and Simulation (2023–2026)
 • Computer Vision (2024–2026)
 • Applied Machine Learning (2024–2026)

Student Mentoring
• Pukun Zhao — AAAI 2026 Accepted
• Qingxuan Yan — Cornell Tech (2025–2026)
• Ruipeng Wang — UPenn → TiMi Studio Group (2025–2026)
• Yusheng Tan — WashU (2026–Present)

TALKS AND PRESENTATION

JIQIZHIXIN / Synced, Invited Talk   21/03/2025

Decoupled Gaussian: Object-Scene Decoupling for Physics-Based Interaction

School of Informatics, University of Edinburgh, IPAB Workshop   20/06/2024

Canonical Consolidation Fields: Reconstructing Dynamic Shapes from Point Clouds

SKILLS & OTHER

• **Computer Skills**: C++, Python, MATLAB, PyTorch, OpenCV, Scikit-learn, etc.
• **Other Skills/Hobbies**: Taekwondo, Hip-Hop, Mountaineering, Guitar, Ocarina, Reading, etc.