

# Feiran Wang

+1-217-305-3694 | [wfr2099@gmail.com](mailto:wfr2099@gmail.com)

 [Homepage](#) |  [Linkedin](#)

Ann Arbor, Michigan - 48103, United States

## RESEARCH FOCUS & INTERESTS

- **3D Vision:** Physically-based 3D Reconstruction, 3D Segmentation, Visual SLAM
- **Embodied AI:** World Models, Vision-Language-Action Models, Sim-to-Real Transfer
- **Generative AI:** Diffusion Models, 3D Generation, Synthetic Data Generation

## EDUCATION

- |   |  |
|---|--|
| • <b>University of Michigan Ann Arbor</b><br><i>Visiting Ph.D. Student, Advisor: Prof. Dawen Cai</i>          | <i>Jan. 2026 - Present</i><br>Ann Arbor, United States     |
| • <b>Illinois Institute of Technology</b><br><i>Ph.D. Student in Computer Science, Advisor: Prof. Yan Yan</i> | <i>Jan. 2024 – Expected 2028</i><br>Chicago, United States |
| • <b>University of Illinois Urbana-Champaign</b><br><i>M.S. in Engineering, Advisor: Prof. David Forsyth</i>  | <i>Aug. 2022 – Dec. 2023</i><br>Urbana, United States      |
| • <b>Shanghai University</b><br><i>B.Eng. in Computer Science, Advisor: Prof. Xiaoqiang Li</i>                | <i>Aug. 2018 – Jul. 2022</i><br>Shanghai, China            |

## PUBLICATIONS

C=CONFERENCE, J=JOURNAL, U=UNDER REVIEW

- [U.1] Feiran Wang, Yan Yan. **RayMap3R: Inference-Time RayMap for Dynamic 3D Reconstruction.**
- [C.1] Feiran Wang, Junyi Wu, Dawen Cai, Yuan Hong, Yan Yan. **CogniMap3D: Cognitive 3D Mapping and Rapid Retrieval.** ICLR 2026.
- [C.2] Junyi Wu, Van Nguyen Nguyen, ..., Feiran Wang, Terrence Chen, Yan Yan, Ziyan Wu. **Consistent Instance Field for Dynamic Scene Understanding.** CVPR 2026.
- [C.3] Feiran Wang\*, Jiachen Tao\*, Junyi Wu\*, Haoxuan Wang, Bin Duan, Zongxin Yang, Yan Yan. **X-Field: A Physically Informed Representation for 3D X-ray Reconstruction.** NeurIPS 2025 (★Spotlight★).
- [C.4] Feiran Wang, Bin Duan, Jiachen Tao, Nikhil Sharma, Gaowen Liu, Dawen Cai, Yan Yan. **ZECO: ZeroFusion Guided 3D MRI Conditional Generation.** MVA 2025 (Oral).
- [J.1] Feiran Wang, Xiaoqiang Li, Jitao Liu. **PCCN-RE: Point Cloud Colourisation Network Based on Relevance Embedding.** IET Computer Vision, 2022.

## SKILLS

- **Programming Languages:** Python, C++, C#, MATLAB, Javascript
- **Deep Learning & Training:** PyTorch, CUDA, TensorFlow, HPC Distributed Training
- **3D Vision & Reconstruction:** Open3D, OpenCV, SLAM, NeRF, 3DGS, VR
- **Cloud & Web:** Alibaba Cloud, Huawei Cloud, AWS, Flask, React, MySQL

## EXPERIENCE

- **Robotics Software Engineer** *May 2023 - Aug. 2023*  
*Foxconn Interconnect Technology, San Jose, CA, Intern*
  - **Simulation Development Platform:** Built Blender-to-MuJoCo toolchain for automatic URDF generation with joint dynamics calibration and collision geometry definition for rapid prototyping.
  - **Motion Planning & Control:** Integrated MoveIt for trajectory planning and collision detection in MuJoCo; designed PD controllers with real-time state feedback for precise trajectory tracking; developed visualization dashboard for monitoring joint positions, velocities, and torques.
  - **Sim-to-Real Deployment:** Optimized control parameters through simulation-hardware closed-loop iteration; validated grasping tasks on low-cost 3D-printed hardware platform.
- **Algorithm Engineer** *Apr. 2022 - Aug. 2022*  
*NPLACE Startup, Shanghai, China, Intern*

- **Image-Based 3D Reconstruction:** Independently explored pure vision reconstruction as alternative to company’s LiDAR solution; built end-to-end pipeline from multi-view image capture through MVS reconstruction to point cloud completion, providing lightweight solution for mobile 3D scanning.
- **MVS Network Optimization:** Applied network pruning and multi-scale feature aggregation to MVSNet; compressed model via knowledge distillation achieving 10% inference speedup.

- **Backend Engineer**

*Sep. 2021 - Dec. 2021*

*ZIPLUNCH, Toronto, Canada, Intern*

- **Backend System Development:** Built restaurant order management platform backend; led database schema design and Flask RESTful API development for order lifecycle management and user authentication.
- **Data Migration & Testing:** Designed and implemented database merge solution for legacy system migration with transaction control and validation mechanisms; built comprehensive unit and integration test suites ensuring code quality and system stability.

## PROJECTS

---

- **3D Medical Image Analysis**

*Sep. 2024 - Jan. 2026*

[Project Page](#)

*University of Michigan Ann Arbor, Cai Lab*

- **3D Medical Data Generation:** Designed ControlNet-conditioned diffusion model for controllable 3D volume generation, achieving 50× synthetic data expansion to address medical image annotation scarcity.
- **Semi-Automatic Annotation Platform:** Built interactive 3D annotation tool based on nnInteractive and nnUNet with morphological processing and connected component analysis, improving annotation efficiency.
- **Neuron Instance Segmentation:** Benchmarked nnUNet and Mask2Former on neuron data; adapted architectures and loss functions for elongated topology and dense interweaving characteristics; explored SAM3 foundation model with domain-specific fine-tuning for 3D medical segmentation.
- **Large-Scale Distributed Training:** Deployed 240-GPU multi-node training environment on HPC cluster with MPI optimization for large-batch parallel processing.

- **Multimodal Agent System**

*Dec. 2025 - Jan. 2026*

*Independent Development*

- **End-to-End AI Companion System:** Built from scratch a multimodal AI system integrating voice conversation, image understanding, and 3D virtual avatar; packaged as iOS native app.
- **Large Model Deployment Optimization:** Deployed Qwen2.5-VL-72B with AWQ 4-bit quantization and multi-GPU auto-allocation, compressing memory from 150GB to 40GB.
- **Streaming Voice Interaction:** Integrated FunASR speech recognition and GPT-SoVITS voice cloning for streaming TTS playback with response latency optimized to under 1 second.
- **3D Virtual Avatar Engine:** Built Three.js + VRM rendering engine with automatic Mixamo skeleton to VRM mapping and 17 animation state transitions.

- **Depth Fusion Visual SLAM**

*Feb. 2023 - May 2023*

*UIUC, Advised by Prof. Shenlong Wang*

- **Outdoor NeRF-SLAM:** Extended NICE-SLAM to outdoor scenes with learned monocular depth prediction providing geometric priors for NeRF implicit mapping on a single GPU.
- **Pose Optimization & Validation:** Adopted quaternion-based pose estimation with sliding window for long-sequence tracking; validated on driving data with ZED 2 stereo camera.

- **Autonomous Vehicle Perception System**

*Sep. 2022 - Dec. 2022*

[Project Video](#)

*UIUC, Advised by Prof. David Forsyth*

- **End-to-End Autonomous Driving System:** Built complete ROS-based autonomous driving system on real vehicle platform covering perception, planning, and control.
- **Multimodal Perception:** Integrated YOLO object detection for obstacle recognition and emergency braking; combined learning methods with Kalman filtering for robust lane tracking.
- **Localization & Navigation:** Implemented LiDAR SLAM for environment mapping and localization.

## ACADEMIC SERVICES & ACTIVITIES

---

**Conference Reviewer:** CVPR 2026, ICLR 2026, ICMR 2026 (PC), ICCV 2025, ICMR 2025, MVA 2025

**Journal Reviewer:** Computer Vision and Image Understanding (CVIU)

**Invited Talk:** Midwest Machine Learning Symposium (MMLS), 2025: Medical Imaging 3D Reconstruction

**Competition:** ALCF GPU Hackathon, Argonne National Laboratory, 2025

## HONORS AND AWARDS

---

**Cyrus Tang Scholarship**, Illinois Institute of Technology

2024 – 2025

**International Exchange Scholarship**, Shanghai University

2020 – 2021

**Academic Excellence Scholarship**, Shanghai University

2019 – 2020