

Wenxuan Guo

(908) 842-4659 | w9guo@ucsd.edu | linkedin.com/in/wenxuan-guo-a4ba72265 | wendyguo2002.github.io

Education

University of California, San Diego

M.S. in Computer Science

Sep 2025 - Present / San Diego, CA

University of Michigan

B.S. in Computer Science and Economics

Aug 2022 - May 2025 / Ann Arbor, MI

Experience

University of California, San Diego - ML Research Assistant

Jan 2026 - Present

Advisor: Prof. Xinyu Zhang

Physics-Based Radar Data Synthesis for Activity Recognition

In collaboration with Amazon Lab126

- Built a text-to-motion pipeline for human and animal behaviors, translating text prompts into controllable subject motion for radar simulation. Organized generated motion into sensor-agnostic RF scene representations, connecting behavior generation with physics-based signal synthesis.
- Integrated **RF Digital Twin (RFDT)**, a physically based differentiable RF ray tracer, to simulate radar responses from animated scenes and produce labeled training data. Generated data across different subjects, behaviors, and environments to support activity-recognition model development.
- Collected real radar measurements of human and pet activities and combined them with synthetic data for activity-recognition training. Supported a broader range of everyday behaviors, including walking, sitting, lying down, falling, and jumping, beyond a single fall-detection task.

Co-author: *Demo: Differentiable Radio Frequency Digital Twin. ACM MobiCom 2026* (forthcoming).

WiTwin Studio - Simulation Platform & Agentic Workflows

- Developed core simulation-preparation workflows in WiTwin Studio, connecting graphic asset management, scene authoring, motion matching, and animation timelines with interactive 3D visualization. Integrated frontend controls with the Python backend so users could assemble scenes, configure subject motion, and inspect animated scenarios within one platform.
- Integrated natural-language agents with scene and motion tools to support multi-step workflows, from inspecting the current scene and preparing animated actors to executing ordered behavior sequences and recording motion on the timeline. Carried scene context and actor references between steps to connect planning with concrete scene operations.
- Established execution boundaries for agent-driven workflows by binding operations to the intended scene and separating read-only planning from scene-changing actions. Added regression coverage for multi-step task handoffs, execution permissions, and saved-scene restoration, supporting consistent scene state across agent interactions, project reloads, and animation playback.

University of California, San Diego - AI/ML Engineer

Jun 2026 - Present

CWC Research Intelligence Platform

- Built and deployed a research intelligence platform covering **20+ CWC faculty**, turning a faculty roster into evidence-backed research profiles. Connected the resulting information to a searchable directory, monthly activity digests, and a collaboration-discovery tool.
- Developed a multi-stage workflow for faculty identity verification, research-evidence consolidation, and LLM-generated summaries, research themes, and keywords. Assembled per-faculty evidence packets with source provenance, checks for unsupported claims, and deterministic fallbacks when generated outputs failed validation.
- Delivered a searchable WebHub with automated monthly data refreshes and deployment through **GitHub Actions**. Added a user-feedback workflow for flagging and correcting profile information, supporting ongoing maintenance as faculty publications, awards, and research activities changed.

University of Michigan - Research Assistant

May 2025 - Aug 2025

Real-Time Radiation Imaging and Augmented Reality Visualization

- Built a gamma-ray waveform classification pipeline using temporal signal features to distinguish detector signals from noise.
- Rebuilt the detector-to-headset data pipeline in **Cython and C++** and integrated detector processing with **Unity and HoloLens 2** for real-time radiation visualization.
- Reconstructed radiation fields from detector signals and traced timing and serialization errors to keep displayed radiation images consistent with incoming events.

Technical Skills

Languages: Python, C++, TypeScript/JavaScript, C#

ML & Scientific Computing: PyTorch, NumPy, SciPy, Scikit-learn; synthetic data generation

AI Systems: LLM tool integration, scene-aware agent workflows, evidence-grounded generation

Simulation & Engineering: RFDT, Unity, Three.js, React, Cython, Git, GitHub Actions