

Chengling Xu

Email: cxu338@wisc.edu | Website: fireflies3072.github.io

Education

Undergraduate | University of Wisconsin-Madison | Madison, WI **Sep 2022 - May 2026**

- Majors: Electrical Engineering | Mathematics (Programming and Computing)
- Senior | GPA: 3.917/4.0
- College of Engineering Dean's Honor List
- Core Courses: Digital Signal Processing, Image Processing, Feedback Control Systems, Optimization, Electronic Circuits, Analog MOS IC Design, Communication Systems

Research Experience

Controller Library [[Project Page](#)] [[Code](#)] **Fall 2025 - Present**

(UW-Madison, Supervised by Dr. Jeremy Coulson)

- Applied PID, MPC, mainly DeePC controllers to Rocket Lander environment
- Created a general controller library for other environments

3D Reconstruction for Radio Radiance Field [[Project Page](#)] **Summer 2024 - Fall 2025**

(UW-Madison Wireless Lab, Supervised by Dr. Feng Ye)

- Developed a user-friendly way to build a 3d room model for radio frequency channel state prediction, based on the framework of radio radiance field (RRF).
- Used large language model (LLM) to generate training data and Blender to display result
- Greatly improved the speed of room radio environment modeling while maintaining high fidelity

Motion Prediction by IMU Sensor [[Code](#)] **Fall 2023 - Summer 2024**

(UW-Madison Wireless Lab, Supervised by Dr. Feng Ye)

- Collected IMU data from Arduino board and sent to edge computer by Bluetooth
- Used machine learning to predict motions from data sequence
- Achieved a prediction rate of 26 times/s with precision of 89.63%

Engineering Projects

Economic Data Analyzer [[Code](#)] **Winter 2024 - Spring 2025**

- Crawled economic news and data from the Internet
- Used Gemini to analyze the effects of the stock market and provided investment suggestions

LC-3 Simulator [[Project Page](#)] [[Code](#)] **Fall 2023 - Spring 2024**

- Developed a substitution for LC-3 assembly language simulator PennSim
- Provided a more user-friendly interface and simplified operations

AI Image Super Resolution [[Project Page](#)] [[Code](#)] **Spring 2022 - Summer 2022**

- Trained a neural network that enlarges an image with low detail loss
- Used the same idea as Real-ESRGAN but with low memory use

AI Renju with AlphaGo Algorithm [[Code](#)] **Fall 2021 - Fall 2022**

- Trained a neural network that plays the board game Renju with PyTorch
- Achieved a high win rate against a 3000-iteration MCTS baseline with only 400 iterations per move

Publications

- **Chengling Xu**, Huiwen Zhang, Haijian Sun, and Feng Ye. "LLM-supported 3D Modeling Tool for Radio Radiance Field Reconstruction." *Submitted to IEEE International Conference on Communications (ICC), 2026.* (Under Review) [[PDF](#)]

Jobs

In-class Peer Coach | UW-Madison Engineering **Fall 2023 - Present (4 Semesters)**

- ECE 203 (Signal processing, F23/F24/F25), ECE 252 (Computer architecture, S25)
- Assist the instructor in course management and guide students through problem-solving
- Improve communication skills and increase student engagement

Custodian | UW-Madison Housing **Fall 2022 - Present**

- Manage facility sanitation and maintain a safe and hygienic environment for all residents
- Execute cleaning schedules and learn time management

Skills

Programming Skills: Python (PyTorch, Flask), C# (WPF, Avalonia, ASP.NET Core), JavaScript (React), C++ (DirectX 9, Arduino, ArenaSDK), Verilog

Hobbies: Programming, Skiing, Swimming, Bamboo flute, Running, Ultimate frisbee