

# XINGSHENG WEI

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Portfolio: <https://xw2815.wixsite.com/xingshengwei>

## EDUCATION

### Columbia University

February 2023

Master of Science in Mechanical Engineering (Robotics & Control)

GPA: 3.9/4.0

Relevant Courses: Reinforcement Learning, Data Analysis, Evolutionary Algorithms, Control Theory, Digital Signal Processing

### University at Buffalo, The State University of New York

June 2021

Bachelor of Science in Mechanical Engineering, Minor in Mathematics

GPA: 3.7/4.0

Honors: Dean's List

## RESEARCH EXPERIENCE

### In-Hand Manipulation with Guided Exploration, Columbia University, NY

September 2021 - March 2023

- Worked with MuJoCo simulations to train a robotic hand for dexterous object rotation using Python.
- Designed analytical controllers to guide reinforcement learning and improve exploration efficiency.
- Worked with simulation environments and developed kinematics modules used by multiple teams.
- Run experiments and iterate the learning algorithm to improve training and result performance.

## PROJECTS

### AI Piano Fingering Generator, Personal [[link](#)]

July 2024 - Present

- Develop PyTorch-based ML models to generate piano fingerings and digitize sheet music from images.
- Build, test and maintain a full-stack website with Azure, MongoDB, Stripe and GitHub.
- Analyze user behavior through data tracking to optimize product features.

## WORK EXPERIENCE

### PassiveLogic., Salt Lake City, UT

April 2023 - Present

#### System Verification Engineer

- Design and build mechanical and electrical test systems to validate HVAC control modules.
- Automated test pipelines in Python and C++, including configuration input, execution, and report generation with visualizations.
- Collaborated with product and deployment teams to diagnose test results and improve product performance.

### PLAYIDEAs Inc., Great Neck, NY

September 2022 - January 2023

#### Part-time Robotics Teacher

- Taught 15+ students C++ programming and robot design for the VEX Robotics competition.
- Guided students through mechanical builds and control systems using the engineering design process.

## SKILL AND CERTIFICATION

**Programming Language:** Python, C++, Javascript, MATLAB.

**Tools & Platforms:** PyTorch, Git, Docker, VS Code, Cursor AI, Azure, MongoDB.

**Operating System:** Linux, Windows, MacOS.

**Language Proficiency:** English, Chinese Mandarin.

**Certification:** Fundamentals of Engineering Exam (EIT), NY

Passed September 2021

## PUBLICATION

[Value Guided Exploration with Sub-optimal Controllers for Learning Dexterous Manipulation](#). 2024 IEEE

International Conference on Robotics and Automation (ICRA).

[A Novel Lightweight Cable-Driven Integrated-Finger Robotic Hand for Dexterous Manipulation](#). 2022 American Control Conference (ACC).