

Lehong Wang

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EDUCATION

Carnegie Mellon University (CMU)

Master of Science in Mechanical Engineering, Research track

Pittsburgh, PA, USA

Aug. 2024 – May. 2026

Worcester Polytechnic Institute (WPI)

Bachelor of Science in Robotics Engineering and Computer Science (double major)

Worcester, MA, USA

Aug. 2020 – May. 2024

Related Courses: Deep Learning, Machine Learning, Software Engineering, Computer Graphics, Discrete Differential Geometry, Webware, AI for Robotics, Robotics, Control, Embedded Computing, Numerical Methods

TECHNICAL SKILLS

Skill Sets: Software Development, Robotics, Deep Learning, Computer Vision, Research, 3D Reconstruction, Computational Geometry, CAD Design, Finite Element Analysis, Robot Arm Programming, Motion Planning, Control, Robotic Simulation, Additive Manufacturing, Mechatronic System Development, Cloud Computing, 3D Art

Programming Languages: Python, MATLAB, C++, C, Java, JavaScript, R

Engineering Tools: Pytorch, ROS, OpenCV, Docker, WebGL, Flask, CGAL, Rviz, Gazebo, MoveIt, Solidworks, Arduino, Colab, AWS, GCP, CUDA, Blender, Unreal Engine, COMSOL, R studio, KiCAD, Fusion360, CCSstudio

Languages: English (fluent), Chinese/Mandarin (native)

PROJECTS

Internship @ SeeM (<https://seemuseums.art>)

Research Intern

Nov. 2024 – Present

Pittsburgh, PA, USA

- Researched and developed software to build 3D reconstruction of museum artifacts from mobile phone videos.
- Experimented with multiple 3D reconstruction algorithms and deep learning models to obtain desirable results.
- Assisting in the deployment and optimization of the 3D reconstruction pipeline as cloud-based services on AWS.

Conformal Additive Manufacturing, Biorobotics Lab

Research team leader (10-member research project)

May. 2023 – Present

Pittsburgh, PA, USA & Remote

- Developed software framework for transforming 2D PCB design onto arbitrary high curvature 3D surface.
- Implemented mesh generation, parametrization, and point cloud reconstruction algorithms for motion generation.
- Designed and Programed UR robot arm and motorized platform for conformal FDM on high-curvature surfaces.
- Led the mechatronic and software development of high-precision motion system for multi-axis fabrication.
- Assist with digital twin data collection and Manufacturing Futures Institute (MFI) Digital Backbone integration.

Anchor Alignment Adaptive Weighting for Robust Domain Generalization

Research Project

Dec. 2024 – Present

Worcester, MA, USA

- Developed novel algorithm leveraging NLP anchors to enhance domain generalization and noise robustness.
- Designed a weighted loss function that dynamically adjusts sample contributions based on NLP-derived anchors.
- This work is submitted to Pattern Recognition Journal.

Fluidic Circuit Auto-generation Software

Research Assistant of Robotic Materials Group

May. 2022 – Present

Worcester, MA, USA

- Developed a design software customized for the automation of fluidic circuitry design.
- Incorporated software into lab component of graduate course and consistently enhanced it based on user feedback.
- Researched parameterized designs of fluidic logic elements suitable for desktop FDM printing.
- Received **Best Paper Award** at 2024 IEEE RoboSoft conference; an additional paper submitted to RAL.

Quadruped with Robot Arm for Loco-Manipulation Tasks

Team member (6-member teamwork capstone research project for undergraduate degree)

Aug. 2023 – May. 2024

Worcester, MA, USA

- Collaborated in a team of 6 members to develop software and hardware add-ons for the Unitree Go1 robot.
- Researched and modified quadruped motion planning and perceptive locomotion frameworks, such as OCS2.
- Implemented modified framework with perception on the Go1 robot and demonstrated improved locomotion.

Vision-based Close-loop Printing for Desktop FDM Printers

Team Leader (4-member teamwork project)

May. 2023 – Nov. 2023

Worcester, MA, USA

- Led the team to develop software that analyzes printing gcode, detects defects, and generates fixing commands.
- Implemented the approach on a desktop FDM printer and successfully improved the quality of the print.
- This work was published at 2024 IEEE Conference on Soft Robotics (RoboSoft) as **Oral Presentation**.

Wheelchair Simulator Game for Rehabilitation (WheelUp)

Research Assistant of Intentional Design Studio (IDeaS)

Nov. 2022 – May. 2023

Worcester, MA, USA

- Collaborated in a team of 6 to build a wheelchair training game for patients with limited locomotion abilities.
- Designed and implemented a control system and physics simulation environment for the wheelchair.
- This work was published and presented at 2023 IEEE Conference on Games (CoG),

Toward Wearable Multimodal Neuroimaging

Team Member (7-member teamwork project)

May. 2022 – Oct. 2023

Worcester, MA, USA

- Collaborated to design and build an affordable and portable single-channel wireless EEG device.
- Designed and implemented embedded programs for parsing, analyzing, and transmitting wireless EEG data.
- Involved in designing and manufacturing a functional prototype with custom PCB board.

Task & Resource Management Software

Software Engineer Intern (10-member two-month internship program)

Jan. 2022 – Mar. 2022

Worcester, MA, USA

- Collaborated to develop a task and resource management software for the Birmingham Women's Hospital.
- Used Agile Software Development methodology and daily scrums in the process of developing the software.
- Involved in designing and building the backend database and improved the frontend UI for the software.