Jin-Rou (Jennifer) Chang

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EDUCATION

University of Michigan — **Ann Arbor, MI**
M.S. in Mechanical Engineering — *Aug. 2025 – May 2027 (expected)*
GPA: 3.49/4.00, Alumni Association of Taiwan Scholarship (2025-26)
Coursework: Design for Manufacturability; Introduction to Algorithmic Robotics; Mathematics for Robotics

National Taiwan University — **Taipei, Taiwan**
B.S. in Mechanical Engineering — *Sept. 2020 – June 2024*
GPA: 3.70/4.00, Dean's List 2020
Coursework: Intro to the Finite Element Method; Design Automation and Optimization; Machine Elements Design

SKILLS

CAD & Simulation: Autodesk Inventor, AutoCAD, SolidWorks, Fusion 360, ABAQUS (FEA), Autodesk CFD
Programming & Controls: MATLAB, Python, C, C++, Arduino
Manufacturing & Quality: Machining (lathe, mill, grinding), welding, 3D printing, laser cutting, GD&T, DFMEA

WORK EXPERIENCE

Garmin Ltd. — **New Taipei, Taiwan**
Intern, New Product Introduction Department, Product Engineering, SMT Team — *July 2023 – June 2024*

- Authored Design for Manufacturability documentation across 8 products to support the transition from pilot runs to mass manufacturing, reducing rework costs and improving production readiness.
- Created 160+ laser-cut PCB diagrams in AutoCAD for fixture testing and validation purposes, enabling efficient fixture fabrication and verification.
- Investigated electromechanical failures during PCB soldering processes and applied red dye penetration testing to identify welding defects, improving defect detection and manufacturing quality.

PROJECT EXPERIENCE

University of Michigan — **Ann Arbor, MI**

Kinodynamic Motion Planning (RRT-based) — *Sept. 2025 – Dec. 2025*

- Implemented a kinodynamic RRT planner in Python for a planar hovercraft via forward simulation of system dynamics and motion primitives, enabling collision-free planning under acceleration and velocity constraints.
- Built a physics-based PyBullet simulation with obstacles and evaluated planner performance by varying motion primitives, visualizing the search tree and generating dynamically feasible trajectories that reached the goal.

Smoothie Maker Redesign with Manufacturability Analysis — *Sept. 2025 – Dec. 2025*

- Redesigned CAD modules in SolidWorks for a professional-use variant, increasing container capacity, adding handles for portability while preserving common mechanical interfaces to enable cross-variant interchangeability.
- Performed DFMEA-driven redesign of a stainless-steel sheet metal component using SolidWorks DFMPro and applied analytical cost models to evaluate manufacturability and process-dependent trade-offs for high-volume production.

Google Hardware Product Sprint - RFID-Enabled Laundry Sorting Basket — **New Taipei, Taiwan**
Selected Participant; Mechanical Design Lead — *June 2024 – Sept. 2024*

- Engineered mechanical components in Inventor and AutoCAD, integrating Arduino control and fabricating prototypes via 3D printing and laser-cut MDF and acrylic, resulting in a fully integrated and functional system prototype.
- Collaborated within a 5-person team to deliver and present a fully functional prototype; articulated design rationale and technical trade-offs to Google engineers and earned recognition.

LEADERSHIP EXPERIENCE

National Taiwan University — **Taipei, Taiwan**
Full-time Teaching Assistant — *Aug. 2024 – July 2025*

- Built teaching prototypes (1.2 m fan array, 60 cm sail car) for fluid dynamics demonstrations to improve visualization.
- Led 200+ hours of lectures and laboratory instructions for 300+ students across 5 core engineering courses, and delivered all-English instruction for international students, enhancing technical presentation and communication skills.