

Katelyn E. Chen

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EDUCATION

Stanford University

Stanford, CA

M.S. Mechanical Engineering (Robotics and Mechatronics Track)

Sep 2024 – present

B.S. Mechanical Engineering (Dynamics Systems and Controls Track)

Sep 2021 – present

Courses: Robot Perception; Advanced Dynamics and Computation; Vibrations and Controls; Mechanical Systems Design

EXPERIENCE

Assistive Robotics and Manipulation Lab - Student Researcher

Jun. 2023 – present

Stanford University, Advised by Monroe Kennedy (PI)

Stanford, CA

- Designing a high-toughness electro-tendon material for anthropomorphic robot hands and building test setups for durability, position accuracy, and high-frequency control to improve robotic actuation
- Utilized Python and Swift to develop a LiDAR-based iOS app for real-time depth data visualization, successfully optimizing an IMU-based data collection setup for in-field use
- Deployed a PyTorch trajectory prediction machine learning model as a CoreML model on the phone for an integrated data collection and prediction pipeline

German Aerospace Center - Robotics R&D Intern

Jun. – Sep. 2024

Institute of Robotics and Mechatronics

Oberpfaffenhofen, DE

- Optimized and calibrated impedance and gravity compensation controllers for 7-DoF KUKA robotic arms in Simulink, streamlining control efficiency and troubleshooting pipelines
- Implemented C++ position control algorithms for a dexterous robotic hand, establishing a robust control pipeline using Conan package management and documenting hardware and software setup
- Collaborated with cross-functional teams on a mission with the ISS to teleoperate a space robotics team, assisting in the audio-visual setup and testing of the robot control UI, contributing to mission success

Intelligent and Interactive Autonomous Systems Group - Student Researcher

Mar. – Jun. 2023

Stanford University, Advised by Dorsa Sadigh (PI)

Stanford, CA

- Implemented Python code for path planning and conducted comparative analyses on two robotic arms, providing insights into system performance and platform selection
- Developed and 3D printed custom gripper parts to enhance food acquisition for robot-assisted feeding visuo-haptic policies, improving production processes and product functionality

GlobalWafers - Engineering Intern

Jul. – Aug. 2022

Taisil Branch, Quality Analysis Lab

Hsinchu, Taiwan

- Conducted infrared light scattering tomography and image processing for defect analysis in silicon wafers, creating data sets for ML-based defect detection and tracking
- Iterated on infrared tomography test recipes to enable defect measurement alignment, analyzing data for tuning recommendations to the Crystal Pulling team

PROJECTS

Volkswagen ID. Buzz Wheelchair Car Entry Design and Prototype

Sep. 2024 – present

Volkswagen Innovation and Engineering Center with Stanford University, Advised by Lorenzo Dunn

Stanford, CA

- Designing an inclusive ingress/egress mechanism for limited mobility users, focusing on developing a user-friendly and automatically deployable lift integrated with the car door

Mechatronics Design of an Obstacle Course Navigating Robot

Jan. – Apr. 2024

Introduction to Mechatronics at Stanford University, Advised by Tom Kenny and Karl Gumerlock

Stanford, CA

- Designed, built, and programmed a robot with integrated sensors (IR, wall, line) to autonomously navigate obstacles, achieving the first successful run in the class

LEADERSHIP

American Society of Mechanical Engineers Stanford Student Section, Co-President

Sep. 2023 – present

Stanford Engineers for a Sustainable World, Co-President

Jun. 2024 – present

SKILLS

Software: MATLAB, Simulink, Python, C++, SolidWorks, Fusion 360, Swift, R, KiCAD

Manufacturing Processes: CAD, FEA, 3D printing, laser cutting, machining, TiG welding, sand casting, woodworking

Languages: Bilingual English and Mandarin, Beginner German