

# Max Chen

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## Education

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**Purdue University**, West Lafayette, IN Aug 2021 – May 2025

- **Degree:** Bachelor of Science in Robotics Engineering Technology
- **Minor:** Electrical Engineering Technology
- **Honors:** Dean's List & Semester Honors (2022-2025)

## Experience

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**Audio Engineering Research Assistant**, SEAT Lab, Purdue University – West Lafayette, IN Aug 2024 – Present

- Developed Python automation scripts for audio impedance measurements, improving data collection efficiency
- Conducted research on acoustical loads and electrical impedance relationships; contributed to publication

**Engineering Intern**, Purdue Applied Research Institute – Crane, IN May 2024 – Aug 2024

- Assembled and optimized precision wafer probe station for semiconductor testing
- Designed custom controller hardware/software with computer vision-based gesture control

**Teaching Assistant / Laboratory Instructor**, Purdue University – West Lafayette, IN Aug 2024 – Dec 2024

- Facilitated hands-on laboratory sessions for 25+ students in ECET 327 (Instrumentation and DAQ Design)
- Taught and provided support in NI LabVIEW programming
- Provided detailed feedback on lab reports and assignments, ensuring mastery of course exercises

**Robotics Research Assistant**, HIROLab, Purdue University – West Lafayette, IN Sept 2022 – Feb 2025

- Designed and fabricated 100+ STEM-education robotic kits using ROS and advanced digital fabrication
- Developed EMG muscle sensor systems for safe human-robot interaction in educational settings
- Created comprehensive K-12 robotics curriculum and prosthesis adapters for biomechanics research

## Publications

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**Using Speakers as Sensors: Detecting Acoustic Loads with Dense Neural Networks and Impedance Features** 2025

*Max Chen*, Noori Kim, Keisuke Alexander Nakamura

Extended Abstract • 10.5703/1288284317876

**Nuplator: A Comprehensive Robotic Arm System for K-12 Education** 2025

Andres Torres, Ahmed Soliman, [7 other authors], *Max Chen*, et al.

10.1007/s41686-025-00102-9

## Projects

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**PPE A.I. Vending Machine** Senior Capstone

- AI-powered vending machine using YOLO object detection for PPE compliance monitoring
- Developed with Python, PySide6, OpenCV, and Nvidia Jetson Orin Nano for edge AI processing

**Autonomous Rally Car Race** Course Project

- Achieved 48-second lap time with autonomous navigation using ROS, LIDAR, and PD control
- Implemented wall-following algorithm and waypoint navigation with AMCL localization

## Technical Skills

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**Programming:** Python, C, MATLAB, Java, LabVIEW  
**CAD:** SolidWorks, Siemens NX, Autodesk Inventor  
**Robotics:** ROS, OpenCV, YOLO, Computer Vision  
**Embedded:** Arduino, Raspberry Pi, Nvidia Jetson  
**Digital Fabrication:** 3D Printing, Laser Cutting, Soldering, KiCad, NI Multisim