

Hong-Ming Justin Tan

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EDUCATION

Northwestern University - M.S. Computer Science (AI and Robotics), Minor in Entrepreneurship, Sept 2025 - present

University of South Carolina - B.S. Computer Engineering, Minor in Mathematics (Honors College), May 2025

Summa Cum Laude • Dean's Scholar • SC Palmetto Fellows Scholarship • President's Award • Outstanding Senior Award

EXPERIENCE

IDX Exchange | Software Engineering Intern

June 2026 - Present

- Developing a full-stack property search application using React, Node.js, Express, MySQL, and Docker
- Building REST APIs, database-backed search, and responsive frontend interfaces for real estate listings
- Applying SWE best practices including testing, version control, performance optimization, and code review

Pinpoint | Co-Founder & Founding Engineer

Jan 2026 - Present

- Built an AI-powered travel planning platform that converts travel videos into structured, map-based itineraries
- Developed a multimodal AI pipeline combining speech transcription, LLM-based place extraction, and Google Maps validation for automated location discovery
- Conducted 30+ customer interviews to identify pain points and guide product development

Naval Autonomous Maritime Perception Project, USC | Undergraduate Researcher

April 2024 - May 2025

- Built real-time CV pipeline for sky object detection, localization, classification, super resolution, and tracking
 - Trained YOLOX /ResNet-50 models; optimized MOT and SR frameworks; compiled datasets (Roboflow/Kaggle)
 - Mentored undergraduate researchers in machine learning workflows, Linux development, and dataset preparation
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PROJECTS

AI Chess App

- Developed Android chess application integrating a Python chess engine through Chaquopy with multiple AI difficulty levels and move evaluation logic
- Published as senior capstone project and honors thesis

Duckiebot Autonomous Lane Following

- Built autonomous lane-following vehicle using ROS, Docker, Python, and computer vision
- Developed perception and control pipeline using only onboard camera input

Audio Activity Recognition System

- Built ML pipeline to classify environmental audio events including clapping, coughing, alarms, and knocking
 - Achieved 86% classification accuracy using MFCC, FFT, and RMS-based feature extraction
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SKILLS

- Skills: Python, Java, C++, C, PyTorch, Computer Vision, YOLO, Multimodal AI, Machine Learning, Docker, ROS, Linux, Git, Android Studio
- Languages: Fluent Mandarin, Proficient Spanish
- Additional: Korea University Study Abroad (2023), Eagle Scout (2017)