

Chang-Hong Chen

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EDUCATION

University of Maryland, College Park

Maryland, United State

Master of Engineering in Robotics

Sept. 2021 – Expected May 2023

National Tsing-Hua University (NTHU)

Hsinchu, Taiwan

Bachelor of Science in Power Mechanical Engineering

Sept. 2015 – June 2019

TECHNICAL SKILLS

Programming: C, C++11 | 14 | 17, Python, Bash, MATLAB

Tools: CMake, Git, Docker, ROS, ROS2, Gazebo, Webots, RVIZ, MoveIt, SolidWorks, Gtest, Nav2, SLAM Toolbox

PROFESSIONAL EXPERIENCES

Kick Robotics, LLC

Bethesda, Maryland

Robotics Intern

Sept 2022 – Dec 2022

Designed and supported software for a warehouse bot project

- Applied ROS2 navigation pipeline with Nav2 and SLAM Toolbox
- Designed the warehouse simulation in Gazebo for regression testing

Vecna Robotics

Waltham, Massachusetts

Robotics Software Intern, Autonomy

June 2022 – Aug 2022

Implemented new features on current robot product

- Developed control code and automatic calibration process for barcode scanner with steering mirror

Fixed bugs and improved existing workflow

- Designed testing pipeline and tools for analyzing vibration performance of different lidar mounts using embedded IMU
- Automated scripts for communication with peripheral sensors
- Introduced and configured parameters in robot queuing behavior for customized needs

National Tsing-Hua University, Dept. of Electrical Engineering

Hsinchu, Taiwan

Research Assistant, Artificial Intelligence Center

July 2019 – Jan 2020 | Sept 2020 – July 2021

Researched on integrated task and motion planning of robotics arm

- Integrated VAE sampling-based motion planning with PDDLStream, an off-the-shelf planning framework

Collaborated in a Ministry of Science and Technology (MOST) project of anthropomorphic robot arm application

- Modified the robot arm software framework by using ROS and TCP socket to establish connections between Webots simulator and physical robot

Delta Electronics, Inc.

Taipei, Taiwan

Software Intern, Delta Research Center

July 2020 – Aug 2020

Designed a modularized robot arm face tracking system

- Implemented a web UI, a vision module with OpenCV, a control module with MoveIt, and integrated using ROS and Docker
- Evaluated and examined novel software tools for industrial robot applications, including Docker, WSL2, and ROS
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PROJECT EXPERIENCES

Mobile Manipulators Pick and Place

- Designed mobile manipulator with rocker-boogie chassis using SolidWorks
- Implemented pick and place simulation in Gazebo by calculating FK, IK, and Jacobian matrix

Urban Search and Rescue with Mobile Robots

- Implemented ROS navigation stack to navigate the robot through the map finding fiducial marker