CHANUN ASAVASIRIKULKIJ

Bangkok, Thailand | https://chanun3571.github.io/ |+66 838887155 | chanun3571@gmail.com

EDUCATION

CHULALONGKORN UNIVERSITY Bangkok, Thailand

Master of Engineering Aug 2021- Jul 2023

Major in Cyber-Physical System

Cumulative GPA: 4.0/4.0

Thesis Topic: Formation Control of Mobile Robot Swarm in Search Operation

- *Experienced in using 3D CAD to design a mobile robot mounted with lidar and stereo camera for a swarm robot application.*
- *Experience in software development for multiple mobile robots using ROS and Python to enable autonomous movement control.*

Bachelor of Engineering Aug 2017 – Jul 2021

Major in Mechanical Engineering

Cumulative GPA: 3.32/4.0 (Second Class Honors)

Thesis Research: Peer-to-Peer Robot Communication with Real Time Data Acquisition

- *Experienced with articulated robot (Universal Robot) for perform pick-and-place tasks using image processing to identify the boxes.*
- *Experienced with real-time data acquisition from robots for visualization within a digital twin.*

EXPERIENCE

TOKYO INSTITUTE OF TECHNOLOGY Tokyo, Japan

Exchange Researcher Jul 2022 – Sep 2022

- Implemented formation control and control barrier function to synchronize drone swarm while interacting with humans.
- Developed a virtual reality interface using Unity to receive command execution from human operator's hand movement and receive feedback visualization through a head-mounted display.
- Conducted an individual research project under the supervision of Associate Professor Takeshi Hatanaka.

ELECTRICITY GENERATING AUTHORITY OF THAILAND Bangkok, Thailand

Robotics Engineer *(University-Industry Collaborative Project)* Jan 2022 – Jun 2022

- Selected sensors (thermal camera and microphone) for a mobile robot to detect anomalies in pumps and generators.
- Applied the Fourier transform to analyze sound collected by the robot, detecting abnormal vibrations and explosions.
- Extracted real-time images from thermal camera for recognition and color segmentation, triggering alarm in cases of water leakage or machine overheating.

URBAN MOBILIITY TECHNOLOGY COMPANY LIMITED Bangkok, Thailand

Automobile Design Engineer *(University-Industry Collaborative Project)* Aug 2020 – Dec 2020

- Designed solution to solve ergonomics problems for Tuk Tuk drivers by reducing pedal angle and redesign brake lever.
- Processed data from Vehicle Control Unit (VCU) to design functions for regenerative braking of electric Tuk Tuks.
- Selected appropriate sensors and performed sensor mounting on Tuk Tuk for prototype testing.

MFEC PUBLIC COMPANY LIMITED Bangkok, Thailand

Innovation Consultant *(Internship)* Jun 2020 – Aug 2020

- Setup and managed IOT devices using industrial standard protocols.
- Processed and visualized database with dashboard and webserver.
- Involved in the process of implementing IOT devices to real factory, transforming factory from offline to online.

RESEARCH PUBLICATIONS

HUMAN WORKLOAD EVALUATION OF DRONE SWARM FORMATION CONTROL USING VIRTUAL REALITY INTERFACE --- *ACM/IEEE International Conference on Human-Robot Interaction* Mar 2023

- Evaluated human workload with several volunteers during interaction with a drone swarm through virtual reality interface.
- Conducted an experiment involving the use of a joystick controller and a virtual reality controller to manipulate the drones via a head-mounted display, comparing the human's control capability between controllers.

A STUDY OF DIGITAL TWIN AND ITS COMMUNICATION PROTOCOL IN FACTORY AUTOMATION CELL

IEICE International Conference on Emerging Technologies for Communications Dec 2021

- Created a digital twin to localize, map, and optimize workflow of industrial-grade robotics system.
- Performed real-time system data ingestion for multiple machines to work together on the same up-to-date map, supporting the human operator in scaling the systems effectively.

LOW LATENCY PEER TO PEER ROBOT WIRELESS COMMUNICATION WITH EDGE COMPUTING

IEEE International Conference on System Engineering and Technology Nov 2021

- Developed a new peer-to-peer wireless platform that enables real-time communication for multiple robot systems.
- Utilized the high bandwidth and low latency wireless platform to facilitate seamless interaction between mobile robots and articulated robots for smart factories.

ORGANIZATIONS

HARVARD COLLEGE IN ASIA PROGRAM 2021 (HCAP2021) Bangkok, Thailand
Co-director of Relations Committee Nov 2020 – May 2021

- Participated in a winter conference, alongside students from top universities across Asia, hosted by Harvard students.
- Hosted a spring conference, being a cultural ambassador to promote Thailand to Harvard students and delegates from other countries.
- Developed a much better understanding of the culturally complex international communities and foster cooperative relationships with young leaders from the United States and Asian countries.

MECHANICAL ENGINEERING STUDENT ORGANIZATION Bangkok, Thailand
Committee Member Jan 2019 – May 2021

- Organized student enrichment initiatives, comprising career discussions, volunteer engagements, industry excursions, and social gatherings.
- Dedicated my engineering expertise to improve the well-being of both my fellow students within the institution and disadvantaged students outside by participating in various events and camps as a volunteer.

EXTRACURICULLAR ACTIVITIES HIGHLIGHTS

FALLING WALLS LAB THAILAND 2023 Bangkok, Thailand
Presenter Aug 2023

- Qualified as one of the 18 presenters who are eligible to pitch the idea from a pool of 37 applicants from across Thailand.
- Presented on the topic of "Breaking the Wall of Human-Swarm Interaction".
- Networked with experts from academia and business, presenters, and audiences.

TECHSAUCE GLOBAL SUBMIT 2023 Bangkok, Thailand
Speaker Coordinator Volunteer Aug 2023

- Worked as a team to coordinate 300+ world class speakers in the largest tech conference in Asia, acting as the main point of contact of the speaker on-site.

ROBOT DESIGN CONTEST 2019 Bangkok, Thailand
Competitor Jun 2019

- Programed a fully automated line-tracking mobile robot using a PID controller.
- Designed and built a controllable mobile robot with a gripper for performing pick and place tasks.

ADDITIONAL

Technical Skills: Advanced in Python, Linux/Ubuntu OS, ROS, Gazebo, SLAM & Navigation System
Proficient in MATLAB, Computer Vision, Control Theory, Unity, Fusion 360
Languages: Fluent in Thai; Conversational Proficiency in English
Certifications & Training: Microsoft Certified; Azure AI Fundamentals, Azure Data Fundamentals, Azure Fundamentals
Awards: Scholarship from Chulalongkorn University and Japan Student Services Organization (JASSO)
Interests: Robotics, Human-Robot Interaction, Swarm Robotics, Human-Swarm Interaction