NARATHIP RODWARNA

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EDUCATION

University of Illinois Urbana-Champaign Illinois, USA
Master of Engineering in Autonomy and Robotics January 2023 – December 2024 (Expected)

- Coursework: Autonomous Vehicle System Engineering, Computer Vision, Introduction to Robotics, Principles of Safe Autonomy, Artificial Intelligence, Deep Learning, and Natural Language Processing

Chulalongkorn University Bangkok, Thailand
Bachelor of Engineering in Mechanical Engineering May 2011 – July 2015

- Activities: Engineering Student Committee, Orientation Camp Organizer, Voluntary Camps

SKILLS & TRAININGS

Programming Languages: Python, C++, Java
Related Software and Frameworks: PyTorch, TensorFlow, OpenCV, ROS, Gazebo, Docker, Git
Spoken Languages: English, Thai, Japanese

PROFESSIONAL EXPERIENCE

GE Aerospace Research Illinois, USA
Graduate Student Researcher May 2024 – Present

- Evaluate and fuse trajectories from multiple Visual SLAM algorithms, including ORB-SLAM3, OpenVSLAM, and LSD-SLAM, using a monocular camera to enhance mapping accuracy and localization reliability

University of Illinois - DASLAB Illinois, USA
Graduate Student Researcher March 2024 – Present

- Engage in research at DASLAB on the NSF-USDA funded COALESCE project
- Integrate object detection, visual servoing, and visual navigation to enable agricultural robots to navigate crop rows, detect pests, and control a robotic arm for pesticide application

Bangkok Mass Transit System Public Company Limited Bangkok, Thailand
Rolling Stock Planning Engineer January 2020 – September 2021

- Led and coordinated maintenance teams to strictly adhere to operational schedules for the Automated People Mover (APM), ensuring high reliability and availability with fewer than 1 delay case per month

Toyota Daihatsu Engineering & Manufacturing Company Limited Samut Prakan, Thailand
Senior Engineer June 2015 - June 2019

- Collaborated with designers to develop acoustic performance packages during the design and evaluation process, contributing to a newly launched model that achieved a 35% market share
- Verified and validated acoustic performance of vehicles and components through measurement and simulation
- Conducted root cause analysis and implemented effective solutions for current issues in the market

RELEVANT PROJECTS

Autonomous Vehicle Curbside Pickup February 2024 – May 2024

- Implemented sensor fusion using ZED stereo camera and LiDAR to detect and track pedestrians in 3D on GEM e2
- Implemented YOLO for pose detection to accurately identify waving pedestrians for pickup services

F1tenth Line Following and Obstacle Avoidance October 2023 – December 2023

- Designed line detection and line following algorithms leveraging Sobel filtering, image thresholding and line fitting for precise line detection on a 1/10th scale autonomous racing car
- Designed and optimized a Proportional-Integral-Derivative controller (PID) for optimal navigation; integrated LiDAR to enable obstacle avoidance and responsive braking

A Comparative Analysis of Distracted Driver Detection October 2023 – December 2023

- Designed, trained and evaluated a Convolutional Neural Network (CNN) from scratch and compared it with a transfer learning model, achieving a peak accuracy of 97.9%

Vehicle Control and Localization August 2023 – November 2023

- Implemented vehicle lateral controller using pure pursuit with lookahead point estimation, incorporating averaging techniques for smoother maneuvering through curves
- Implemented particle filtering with LiDAR measurements for precise indoor vehicle localization