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)
- Related Coursework: Autonomous Vehicle, Computer Vision, Artificial Intelligence, Deep Learning

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, Linux, Bash, CATIA, Jira
Spoken Languages: English, Thai, Japanese

PROFESSIONAL & RESEARCH EXPERIENCE

University of Illinois, Distributed Autonomous Systems Laboratory (DASLAB)   Illinois, USA
Graduate Student Researcher   March 2024 – Present
- Conduct research on the NSF-USDA funded COALESCE project, developing systems that integrate visual navigation, object detection, and visual servoing for 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
- Conducted commissioning audits to ensure compliance with project requirements and safety standards
- Led and coordinated maintenance teams to 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 applied problem-solving skills to deliver effective solutions for technical issues

RELEVANT PROJECTS

GE Aerospace Research Collaboration – Visual SLAM Benchmarking and Fusion   May 2024 – Present
- Implement trajectory fusion of multiple Visual SLAM algorithms (ORB-SLAM3, OpenVSLAM, LSD-SLAM) using monocular camera data to enhance accuracy and robustness in diverse environments
- Analyze image features and motion parameters using Vector Autoregression (VAR) to identify potential SLAM failure conditions, contributing to algorithm switching strategies for improved performance

Waving Gesture Detection for Curbside Pickup in Autonomous Vehicles   February 2024 – May 2024
- Implemented sensor fusion using ZED stereo camera and LiDAR to detect and track pedestrians in 3D on GEM e2

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 for distracted driver detection, and compared its performance 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 localization