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, Docker
Spoken Languages: Thai, English, Japanese

PROFESSIONAL EXPERIENCE

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
- Diagnosed and resolved mechanical as well as electrical issues within the rolling stock system in a timely manner

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

- Collaborated with local and international designers to develop acoustic performance improvement packages in the design and evaluation process, contributing to the success of a newly launched vehicle model, which achieved a 35% market share within the first 12 months of its launch
- Verified and validated acoustic performance of vehicles and their components through bench tests and on-vehicle evaluations resulting in enhanced overall comfort and improved quality perception for passengers
- Conducted root cause analysis and problem solving, incorporating sensor measurement and sensory evaluation, to investigate acoustic performance issues, identify underlying reasons, and implement effective solutions

RELEVANT PROJECTS

Autonomous Vehicle Curbside Pickup and Dropoff February 2024 – Present

- Implemented sensor fusion using ZED stereo camera and LiDAR to detect and track pedestrians in 3D on GEM e2
- Develop optimal solutions for Pickup and Dropoff, prioritizing safety, accessibility and convenience for passengers

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%
- Conducted comprehensive comparisons between CNN and pose estimation method, analyzing their respective advantages and disadvantages

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

Mask R-CNN for Pulmonary Embolism Detection January 2023 – May 2023

- Trained Mask Region-based Convolutional Neural Network(Mask R-CNN) model for object instance segmentation on CT scan images to identify pulmonary embolism (PE), achieving AP50 of 80