Raveeroj Bawornkitchaikul (Ren)

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EXPERIENCE

Research Assistant June 2024 - present
uWAMIT, Seattle, USA https://files.rjbl.dev/s/UWAMIT

- Worked on the robotics component for the autofocus of optical coherence elastography (OCE) and optical coherence tomography (OCT-A) applications

Engineer II December 2019 - November 2021
Robotics Division, Nongkhae, Saraburi https://files.rjbl.dev/s/CPF

- I developed a 2D vision solution for a egg tray depalletizer using perspective-n-point calculation. Achieved a tolerance of ±2 mm on a Logitech BRIO. Collaborated with another colleague who programs the depalletizer robot.
- I programmed a motion detector for mixture storage silos using sparse optical flow [Luca-Kanade]. Communicates to plant controller OPC via MODBUS protocol. Programmed in Julia.
- Programmed a QC application for smart camera[Omron FHV7]. The program prevents the misalignment and contamination of the 3-layered surgical mask.
- Developed a real-time object counter of multiple classes of objects. I created a new data pipeline for use with industrial cameras using Pypylon and Harvestors. Uses CNN[YOLOv3/EfficientDet] and tracker[dlib/SiamMask/SiamRPN] combo.
- Created a silo truck license plate detection program using an object detector[YOLOv3] and OCR[LPRNet]. Runs on a Jetson Nano using TensorRT and Docker.

Intern June 2018 - July 2018
Numazu National College of Technology, Japan

- Worked on applications relating to Machine Learning on a Raspberry PI 3.
- Did a crash course to Machine Learning and Deep Learning for other lab members.

EDUCATION

MS Mechanical Engineering, September 2022 - June 2024
University of Washington, Seattle, USA

- Notable Modules: Dynamics & Vibrations, Automatic Control, Linear Systems Theory, Convex Optimization, Digital Control Systems Design, Estimation and State Identification, Data-driven Controls, Mathematics for Data Science 1-3, Non-linear Optimal Control, Optimization: Fundamentals and Applications, Optics for Engineers, AI-based Mobile Robotics, Models of Robot Manipulation
- Summer project: https://github.com/rjbaw/dd_kalman
- Grader: Math Fundamentals for Systems Theory

BEng Mechanical Engineering, October 2017 - October 2019
University of Nottingham, UK

BEng Mechanical Engineering August 2015 - September 2017
Thammasat University, Thailand

COMPUTER SKILLS

Notable Languages: Python, Julia, Rust, C, C++, Shell Script, Matlab (Simulink), LaTeX
Notable Software Packages: Nginx/Apache, Haproxy, NodeRed, Docker/Podman, (Python): Pytorch, OpenCV/Open3D, Harvesters/Pypylon, NumPy/SciPy, ROS/ROS2, Gym, CVXPY
Operating Systems: Linux [Debian/RHEL]

Computer Aided Design: SolidWorks, Creo, AutoCAD, Abaqus, ANSYS CFD

FOREIGN LANGUAGES Thai[Native], English[IELTS:7.5], Chinese[HSK3†], †*approx.*