ALUNGRAN PETJIT

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PROFILE

Highly adaptable and fast self-learner with a strong foundation in project-based learning, focusing on programming software and website-application development for integration with computer vision, electronics, and automation systems. Actively explored and applied concepts in Artificial Intelligence (AI), with a keen interest in leveraging new technologies to enhance self-developed systems. Hands-on experience in both front-end and back-end development, along with UX/UI design. Passionate about becoming a full-stack developer and building innovative, end-to-end solutions that seamlessly integrate new technologies with modern user needs.

EDUCATION

Bachelor of Engineering Robotics and Automation Engineering
[2021- 2025]
King Mongkut's University of Technology Thonburi (KMUTT),
Institute of Field Robotics (FIBO), Bangkok
GPAX : 3.63 / 4.00
First Class Honours Grade

Software related courses

- Programming knowledge
- Website application development
- AI & Machine learning
- Microcontroller programming
- 3D and game development
- Software Projects
- UX/UI design

High school Intensive Mathematics and Science Program (IMSP)
[2018 - 2021]
Bodindecha (Sing Singhaseni) 2 School, Bangkok
GPAX : 3.99 / 4.00

INTERESTS

- Website application development
- Artificial Intelligence
- Deep learning
- Computer vision
- Neural Network
- Machine Learning
- Image Processing
- 3D Modelling

SKILLS

- Lifelong & Life-Wide Learning
- Teamwork & Collaboration
- Adaptability & Flexible
- Time management
- Attention to detail
- Responsiveness

TECHNICAL SKILLS

- Language : Thai, English (C1 Advanced - EF SET, 6.0 TETET)
- Office tools : Microsoft Office, Microsoft Team, Spreadsheets
- Computer Languages : C, C++, Python, JavaScript, TypeScript. SQL
- Developer tools : Visual Studio Code, Git, GitHub, Docker, Figma, Jupyter notebook, Linux basics
- Programming knowledge : OOP, Version Control, Database Management, Functional Programming, File System Management

Library, Framework, Techstacks

- Frontend : HTML, CSS, Vite.js, Vercel. Typescript, Javascript
- Backend and Database : Node.js, Express.js, Mongoose, MongoDB
- Computer vision : YOLO, OpenCV
- AI and Machine learning : Pytorch, Tensorflow, Scikit-Learn, google colab
- Control & Robotic : Basic ROS, microcontroller programming

WORKS EXPERIENCE AND INTERNSHIP (1.5 YEAR WORKING EXPERIENCE WITH ENGINEERING TEAM)

Internship as Work Integrated Learning Project 6 months period [MAY 2024 - NOV 2024]
Industrial service unit at Institute of Field Robotics (FIBO), KMUTT

Worked in projects alongside engineers at FIBO while taking primary responsibility for the Automatic Document Writing System. Gained hands-on experience in software development, AI applications, and real-world engineering practices.

Industrial Service Unit Engineer - Junior software engineer [JAN 2024 - JUN 2025]
Industrial service unit at Institute of Field Robotics (FIBO), KMUTT

Main responsibilities focused on software development. Worked as junior software engineer helping engineering teams conducted research and development for robotics and automation projects including software and programming, transforming customer requirements into functional and deployable systems. Gained hands-on experience with various machines such as 3D printers and laser cutters, and collaborated with engineers on real-world projects. and AI integration within automation systems and helping engineer tasks.

SOFTWARE DEVELOPEMENT EXPERIENCES

Learned and developed real-world projects based on user needs and problem-driven requirements, focused on applying knowledge and system integration.

- Flexible tech stack
- Full-stack development
- Software system integration
- Automated system programming
- Functional programming
- UX/UI design
- User requirement programing design
- Microcontroller & sensor programming

Automatic Document Writing System Project [Final Graduate Project - Real customer Project 12 months contract - JAN 2024 - JAN 2025]
Industrial service unit at Institute of Field Robotics (FIBO), KMUTT

- Full-stack web app development (Node.js, Express.js, MongoDB, React.js(Basic). JS, HTML, CSS, Python scripts)
- Reference and design from user requirement
- UX/UI design & User interface coding & backend integration
- Software integration to automatic systems (Microcontroller , API)
- Real-time hardware communication (HMI)
- OpenCV-based computer vision + camera feed stream to webapp
- System accuracy, reliability, Security and Ease of use improvement

This project was a fully student-initiated and self-directed team project, developed by three students under the Industrial Service Unit at FIBO. The main objective was to streamline and automate repetitive handwriting tasks commonly found in office environments. I designed and developed a user-oriented full-stack web application for user interfacing the system that integrates a pen plotter, paper feeding mechanism, and embedded control systems. The application enabled user login, drawing input, document configuration, and data management — with real-time communication to hardware via an HMI interface. Additionally, I implemented OpenCV-based computer vision to support camera functionality, including document alignment, character detection, and identifying paper misplacement or signature errors. These features enhanced the system's accuracy and reliability by bridging software commands with physical execution through visual feedback.
This project was also conducted as part of a Work-Integrated Learning (WIL) program contract.

Automated In-Vehicle Surveillance System
Safety Transportation Project - KMUTT Daycare Center

- ESP32-based surveillance system
- YOLOv5 face detection
- LINE chatbot integration (Webhook API)
- Automated photo & alert system

Developed an automatic surveillance and alert system using an ESP32 microcontroller to detect unattended passengers in parked vehicles. Integrated GPS, temperature sensors, and a camera module to monitor in-cabin conditions in real time. Implemented human face detection using YOLOv5 with ESP32 camera, tested specifically with samples of young children to ensure accurate identification. The system automatically captures and uploads photo evidence with environmental data and sends alerts to parents via a LINE chatbot using a Webhook API and receive user command from Line interface when dangerous situations are detected, such as high temperature or the presence of a child.

Automatic Electronic Rental and Storage System
Environmental Sustainability Project - KMUTT Energy Environment Safety and Health (EESH)

- Web app for rental/storage system
- RFID & barcode reader integration
- User account & usage tracking
- Problem design thinking

Researched electronic waste (E-waste) issues and developed a prototype of an automated rental and storage system for electronic components. The system promoted reusability by facilitating borrowing and return processes through RFID card scanning and barcode tracking. I programmed and designed the storage web application interface, handling both front-end and back-end user account functions. The system tracked borrowing activity and maintained rental history for each user account.

HANDS-ON EXPERIENCES TECHNICAL PROJECTS

Machine Learning Coursework Project

- Exploratory Data Analysis (EDA)
- Multilinear regression modeling
- Redshift prediction of celestial objects project
- Dataset selection and managment

As part of the Introduction to Machine Learning course, I conducted exploratory data analysis (EDA) using the Sloan Digital Sky Survey (SDSS) DR18 dataset, which contained numerous astronomical objects. I built machine learning models using multilinear regression to predict the redshift of celestial objects, and compared predicted results against actual data. The work emphasized accuracy and practical application of ML models in supporting further astronomical studies.

Natural Language Processing and Neural Network Coursework Projects

- NLP Neuaral network sentiment analysis model
- PyTorch & TensorFlow implementation
- Hyperparameter tuning & model optimization
- Dataset management

Developed and fine-tuned an NLP-based neural network model for movie review sentiment analysis, classifying text into positive and negative categories. I performed data preprocessing, text cleaning, and tokenization, followed by 30 experimental trials testing different learning rate scheduler strategies. Models were implemented primarily with PyTorch and TensorFlow, supported by Scikit-learn and Matplotlib. The project enhanced my skills in hyperparameter tuning, experiment design, and performance evaluation.

Automatic Refueling Mobile Robot Competition
Innovation Robotic AI & IOT Contest [iRAIC] 2023

- Object detection & localization (OpenCV, PyTorch)
- ArUco marker scanning for positioning
- SCARA robot control for refueling task
- Basic robot control ROS knowledge

Participated in a robotics contest to develop an autonomous mobile robot capable of completing multi-step tasks as a team. My work is help developing and studying a key feature of the system to detect and recognize vehicle license plates using a camera with OpenCV and PyTorch for identification. And use the camera to scan ArUco markers for object localization and estimate their global coordinates to guide the SCARA arm. The robot additionally responded to voice commands to select the correct gas type, navigated through obstacles and used the arm to pick and place the gas dispenser.

SUPPORTING KNOWLEDGE

Computer Vision Task

- Knowledgeable in image processing tasks from basic image processing course.
- Understanding of deep learning algorithm from Natural language Processing course, which can be applied to developing AI image object detection.

Artificial Intelligence, Machine Learning

- Possess fundamental knowledge in AI and machine learning, including concepts of neural networks, data preprocessing, model development, and evaluation.
- Experienced in applying these fundamentals to practical projects.
- Motivated to further specialize in advanced, domain-specific applications through continuous learning and experimentation.

Robotic and Control system

- Knowledge in robot kinematics, Control system and calculus
- Programming knowledge to interact with microcontroller (ESP32, STM32) and basic knowledge of communication protocal (Modbus, RS232)
- Understanding concept and example of Robot Operating System (ROS)

ACTIVITIES

Institution Representative at Exhibitions and Events

Acted as a spokesperson for the Industrial Service Unit at national exhibitions, including Assembly 2024 and PROPAK Asia 2024. Provided information about robotics and automation technologies to booth visitors and promoted the Institute of Field Robotics to the public and industry professionals.

FIBO 30th Anniversary Exhibition

Participated in the FIBO 30-Year Exhibition, showcasing student projects in robotics and automation as Industrial Service Unit student representative. including summits and visits from engineering companies interested in exploring student innovations and collaborations. Online media also present.

REFERAL

Mr. Wutticahi Wisakuna - Supervisor Deputy Director of Academic Services, Industrial Service Unit at Institute of Field Robotics,
King Mongkut's University of Technology Thonburi Email: wutticahi.vis@kmutt.ac.th Phone: (+66)2-470-9701