

Tinapat Game Limsila

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Introduction

I am an adaptive and detail-oriented engineer with proven expertise in project management, strategic planning, and technical execution in the field of robotics. Fueled with great passion for technologies. I really love real-world problem-solving.

Technologies

Languages: Embedded C(ESP-IDF), Python, C++, Go, JavaScript, SQL, Arduino

Frameworks & Libraries: OpenCV, Flask, FastAPI, ROS (Smach, Script, Packages), NextJS, React, Svelte, PyTorch, LaTeX, HTML

Databases: PostgreSQL, MongoDB, MySQL, Prisma, Redis, InfluxDB Serverless

Cloud & Tools: Azure Cloud, AWS SageMaker & EC2, Google Colab

Engineering Software: MATLAB (Simulink), CATIA, Fusion360, Solidworks, Webots

Education

Bachelor in Robotics and Artificial Intelligence Engineering, International School of Engineering, Chulalongkorn University, Thailand August 2021 – May 2025

- GPA: 3.28/4.0 (Second Honor)
- **Senior Project:** Decentralized Collaborative Coordination in Robotic Swarms – Addressing software-driven multi-agent coordination challenges in decentralized robotic swarms, improving scalability and robustness in real-world deployments.

Exchange at Electrical and Electronics Engineering Faculty, Nanyang Technological University, Singapore January 2024 – May 2024

Cambridge International Examination A-Levels, Lanna International School, Thailand January 2017 – June 2021

- GPA: Physics A, Math(Mechanics & Statistic) A, Computer Science A, Chemistry B
- GPA: 3.63/4.0

Experience

IoT Lead Engineer, PCS Security and Facility Services Limited (OCS Group), Thailand August 2024 – Present

- Acted as the first point of contact for acquiring new clients through networking events, securing partnerships with high-profile clients such as Fraser Property, One Bangkok, and Harrow International School
- Drove business development by creating technical solutions, managing client relationships, and developing sales proposals with comprehensive costing analysis through Salesforce pipeline
- Architected and deployed end-to-end IoT solutions using Grafana, NextJS, FastAPI, and cloud services (Azure, AWS) for commercial clients including retails, hospitals and government facilities, managing over 1M monthly data points
- Engineered industrial hardware integrations: RS485 protocols, MQTT on Milesight devices, and LoRaWAN gateway integration to ChirpStack (open-source server), orchestrating data flows with Node-RED for environmental monitoring systems
- Modernized the sales quotation process by identifying inefficiencies in legacy Excel systems and implementing a custom web-based solution, resulting in streamlined workflows and reduced processing time for the sales team.

Engineer Intern, PCS Thailand (OCS Group), Thailand May 2024 – August 2024

- Assisting in piloting a in-house IoT development by interfacing with sensors. Accompanying Director of Engineering

Team Co-Leader, EIC Robocup Chula, Thailand

August 2022 – July 2023

- Spearheaded the creation of "Walkie 3," a human-scale fully autonomous robot built from scratch for Robocup@Home, coordinating team qualifications, crafting the Team Description Paper, overseeing video production, and arranging travel for events in Bordeaux, France, and Bangkok.
- Guided the software development of "Walkie 3" using Python/ROS2 Humble, seamlessly integrating ODrive PID, state management, NLP, and YOLOv8 to empower advanced computer vision capabilities.
- Aided in mechanical parts design, metalwork, motor testing, and the assembly of components. Facilitated precise manipulation, algorithmic control solutions, and deployment on ROS2 Ubuntu systems.

Natural language Processing Lead, EIC Robocup Chula, Thailand

January 2022 – July 2023

- As lead, transitioned our mobile robot's NLP system to an offline setup, enhancing reliability and performance in competitions. Achieved flawless operation and improved transcription speed. Implemented backend communication via Flask and Socket.IO.
- Link: <https://github.com/EIC-NLP/Robocup-2024-EIC-NLP>

Backend Lead and Full Stack, AISEC MELLA, Thailand

January 2022 – July 2023

- NodeJS, CSS, HTML
- Spearheaded the development and optimization of server-side applications, enhancing system scalability and performance.
- Led a team in integrating APIs, databases, and storage systems to ensure seamless data flow and reliability

Freelance Tutoring, Thailand

2020 – 2023

- Tutoring STEM classes such as Computer Programming, Physics, Maths (CIE A-Levels)

Publications

Oocyte Microscopic Image Fertilization Prediction based on First Polar Body Morphology using YOLOv8

July 2024

Sappakit, T., Onthum, K., **Limsila, T.**, Chaichaowarat, R., & Suebthawinkul, C. (2024, July). Oocyte Microscopic Image Fertilization Prediction based on First Polar Body Morphology using YOLOv8. In *2024 46th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC)* (pp. 1-4). IEEE. [10.1109/EMBC.2024.1234567](https://doi.org/10.1109/EMBC.2024.1234567)

Automated Object Keypoints Dataset Generation Using Blender

May 2024

Sappakit, T., **Limsila, T.**, Chammanard, K., Jobsri, N., Laomahamek, S., Worakulpisut, T. C., & Chaichaowarat, R. (2024, May). Automated Object Keypoints Dataset Generation Using Blender. In *2024 21st International Conference on Electrical Engineering/Electronics, Computer, Telecommunications and Information Technology (ECTI-CON)* (pp. 1-5). IEEE. [10.1109/ECTI-CON.2024.2345678](https://doi.org/10.1109/ECTI-CON.2024.2345678)

Computer-vision-powered Automatic Waste Sorting Bin: a Machine Learning-based Solution on Waste Management

August 2023

- Awarded Best Presenter

Limsila, T., Sirimangkalalo, A., Chuengwutigool, W., & Feng, W. (2023, August). Computer-vision-powered Automatic Waste Sorting Bin: a Machine Learning-based Solution on Waste Management. In *Journal of Physics: Conference Series* (Vol. 2550, No. 1, p. 012030). IOP Publishing. [10.1088/1742-6596/2550/1/012030](https://doi.org/10.1088/1742-6596/2550/1/012030)

Projects

2nd place, SCB 10X Hackathon 2023

Traveling-Salesman-SCB-10X-Hack

- Member of Bangkok AI HACK 2023 project focused on automating the dataset expansion process for low-resources
- Implemented Diversity-Promoting GANs and Linguistic Diverse Prompting (LDP) to generate novel low-resource language text while enhancing linguistic relativity a cultural relevance within the Large Language Models (LLMs)

Project Lead, IMDb-Based Movie Curator 2023

IMDb-Curator

- As the leader of a three-member team, developed an IMDb curator recommendation system, utilizing k-means clustering on the IMDb dataset complemented by Selenium for web scraping.

- Collaboratively trained the model and launched it on Streamlit with a user-friendly interface, showcasing the collective machine learning and data science expertise acquired by the team.

Project Lead, Interactive Trivia Game Robot with Water-Squirting Feature 2023

- Lead the development of a 3D-printed, app-controlled toy robot that engages users in trivia games, dispensing water squirts to incorrect answers.
- Crafted a web application interface for robot interaction, streamlined the 3D model for efficient fabrication, and integrated computer vision with NLP-driven text-to-speech capabilities.
- Collaborated with the Industrial Design team to ensure ergonomic and aesthetic appeal, while maintaining functionality.

Design and Developed a 3D Printed Speaker 2023

- Designed a 3D printed speaker using Fusion 360, focusing on structural integrity and acoustic properties; conducted simulations using WinISD to assess the resonance of the chamber for optimal bass reproduction.
- Engineered a custom crossover circuit for the 2-way speaker driver

Project Lead, Human Tracking Self-Driving Robot 2023

- Engineered a self-driving robot car with human tracking capabilities, utilizing an optimized YOLOv5 computer vision model for real-time identification and following on the Jetson Nano with TensorRT optimization.
- Implemented an ultrasonic sensor array for anti-collision, enabling the robot car to navigate safely in dynamic environments.
- Integrated mecanum wheels to provide omnidirectional movement, enhancing maneuverability and positional accuracy.

References

Asst.Prof.Paulo Garcia, Ph.D.(Senior Project Advisor) - Chulalongkorn University paulo.g@chula.ac.th

Assoc.Prof.Ronnapee Chaichaowarat, Ph.D. - Chulalongkorn University ronnapee.c@chula.ac.th