PERAGA PUANGTONG

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EDUCATION

Chulalongkorn University **Bangkok, Thailand**
Interformation and Communication Engineering, Faculty of Engineering *August 2024 – Present*
GPAX: 3.61 (2 Semesters)

EXPERIENCES

Project Lead of The development of the speaking CEFR assessment pipeline | Chulalongkorn University *July 2025 – Present*
- Led the development of an AI automated scoring system for university English-speaking proficiency tests, aligned with CEFR rubrics. Also, designed and improved speaking and LLM models (HuBERT, Wav2Vec2.0 and BERT,) and integrated cross-attention multimodal methods to combine acoustic and linguistic features for higher scoring accuracy, fine tuned with CTC loss for the self-supervised learning models.

Computer Vision Team of Bifrost | Chulalongkorn University *Apr 2025 – May 2025*
- Researched, implemented, and benchmarked object-detection models e.g. YoloX, Yolov11, and Yolo model integrated with SAHI inferencer for autonomous aerial target spotting for competing in SUAS 2025 (USA)

Research Lead of The AI-Assisted Tuberculosis Detection Web Application | NSTDA *May 2023 – Apr 2025*
- Led 2-year research and development of a web-based AI diagnostic platform with a custom microscope attachment, reducing sputum-smear analysis time from over 60 minutes to under 5 minutes. Coordinated clinical validation studies with BIOTEC (NSTDA) and Siriraj Hospital on 300+ patient samples, overseeing data collection, ground-truth labeling, and model performance evaluation, achieving recall and precision by 95% and 94% respectively. Authored technical documentation and secured intellectual property protection for both the AI algorithm and the hardware interface.

Communication Team of KNACKSAT3 Satellite | KMUTNB *May 2024 – Nov 2024*
- Designed and implemented the HC12-based packet radio communication system using the AX.25 protocol for the KNACKSAT3 CubeSat mission, and custom transmitter and receiver modules, enabling reliable bidirectional telemetry in ground tests over 1 km.

ACHIEVEMENTS

International Medalist, AI-Assisted Tuberculosis Detection Web Application | Research Lead *May 2023 – Apr 2025*
- Earned 13 major awards at international and national innovation showcases. The remarkable awards including: **(1)** Bronze Medalist, International Exhibition of Inventions Geneva 2025 (Switzerland). Selected as part of Thailand's representative team. **(2)** Silver Medal & Special Award, International Invention, Innovation & Technology Exhibition 2023 (Malaysia). **(3)** Bronze Medal, Seoul Int'l Invention Fair 2023 (Korea).

1st Runner-up, 6th KIBO programming Challenge | Software Engineer *Jun 2025*
- Engineered autonomous navigation & vision algorithms for NASA's Astrobee robotic assistant, enabling it to traverse predefined waypoints, capture images, and reliably identify mission's treasure objects. Utilized various software optimization techniques and developed AI models
- Achieved the 2nd place on the finalist rounds among 200+ teams in Thailand.

Finalist, Educational Innovation for Sustainable Future | Software Engineer *Jan 2025*
- Designed and developed UX/UI and techstacks of iLabs, an AI-driven virtual STEM laboratory using VR technology to deliver hands-on science experiments to rural students, meeting SDG 4 (Quality Education) by closing geographic and resource gaps.

Honorable Mention Prize, AI Hack Thailand 2024 | AI Engineer *Dec 2024*
- Engineered a machine-learning pipeline to predict individual debt delinquency by inventing 10+ informed features (e.g., payment ratios, credit utilization trends) and evaluated 5+ classifier models. Achieved 68% accuracy on the public leaderboard which is the highest score among all submissions.

Silver Medalist, 19th Thailand Olympiad in Informatics | Competitor *Jun 2023*
- Solved complex C/C++ problems using advanced algorithms including Fenwick trees, graph, divide and conquer, MST, Dijkstra's, Bellman-Ford, Kruskal's, Prim's, dynamic programming techniques, topological sort, sweep-line, etc.

PROJECTS

CULI Scoring *(https://github.com/tanntnny/culi-scoring)* *Present*
- Led the research on developing an AI pipeline for CEFR based on speaking assessment, with certain components kept confidential due to the research nature of the project. The research focused on development of the novel pipeline to improve CEFR scoring effiency with SSL models.

Pose Game Estimator *(https://github.com/tanntnny/pose-game)* *Jul 2025*
- Built an interactive pose estimation game using computer vision, implementing real-time body joint detection with OpenCV and deep learning models.

American Sign Language Translator *(https://github.com/tanntnny/asl-translator)* *Dec 2024*
- Built an AI integrated python-based predictor that is capable of recognizing hand gestures with real-time CV pipeline using Temporal Neural Network and CNN. The program can accurately map the hand gestures to the coresponding words, enabling seamless communication with signers and non-signers

Computer Programming Grader *(https://github.com/tanntnny/grader)* *Oct 2024*
- Built the full stack computer programming grader website and authored some programming problems, allowing friends to practice with more problems for the computer programming class.

EXTRACURRICULAR ACTIVITIES

- **President** of Engineering Innovator Club at Chulalongkorn University
- **Vice president** of the student council at Princess Chulabhorn Science High School Chonburi
- **Participant** of Thailand Cyber Talent 2025 and secured the 99th place among 500+ teams
- **Participant** of the Vetpreneur Challenge Final Round Pitching 2025
- **Best presentation award** in The Spring Global Seminar 2023 at NST Hakodate College in Japan
- **Authored a research proposal** on "Artificial Gravity from Centripetal Force," in CubeSAT by KMITL

MISCELLENEOUS SKILLS

- **Skills:** Leadership, Project Management, AI/ML Engineering, Full-Stack Development (junior), Adapability
- **Languages:** Python, Java, C, C++, Java Script, Type Script, SQL, HTML/CSS
- **Frameworks:** PyTorch, Transformers, LangChain, FastAPI, React, Docker, OpenCV, Pandas, NumPy, BeautifulSoup, Figma
- **Interests:** Natural Language Processing, Large Language Model, Robotics, Financial and Marketing Technology
- **Speak:** Thai (native), English (fluent)