Charnon Pattiyanon, Ph.D.

Assistant Director of IT and Instructor
CMKL University
1 Soi Chalongkrung 1
Ladkrabang, Bangkok, TH

charnon@cmkl.ac.th
https://chnpat.github.io

Current Employment

CMKL University *Bangkok, TH*

Assistant Director of IT and Instructor @ the Department of Artificial Intelligence and Computer Engineering

Cybersecurity Pillar Chair, Undergraduate Studies Committee

Education

Oct '19 - Mar '23 **Japan Advanced Institute of Science and Technology (JAIST)** *Ishikawa, JP*

Ph.D. in Information Science, March 2023

Doctoral Dissertation: Security Weakness and Privacy Preservation Analysis of SSI Management Systems using Information Retrieval and System Modeling

Advisor: Prof. Toshiaki Aoki, Ph.D.

GPA: 2.91 / 3.00

Scholarship: University-Recommended MEXT (Monbukagakusho)

Oct '15 - Sep '17 **Chulalongkorn University** *Bangkok, TH*

M.Sc. in Software Engineering, September 2017

Master Thesis: Quality Assessment Model for Object-Oriented Design Patterns Under Development

Advisor: Assoc. Prof. Twittie Senivongse, Ph.D.

GPA: 4.00 / 4.00 (Top of the Class)

Aug '10 - Sep '14 **King Mongkut's University of Technology Thonburi (KMUTT)** *Bangkok, TH*

B.Eng. in Computer Engineering (International Program), September 2014

Thesis: Smart Sign-Language Dictionary Mobile Application using Image Processing

Advisor: Assoc. Prof. Sanan Srakaew, Ph.D.

GPA: 3.41 / 4.00 (Second-Class Honors)

Research Interests

- **AI & Machine Learning:** Natural Language Processing (NLP), Large Language Model (LLM), Automatic Speech Recognition (ASR), Generative Adversarial Network (GAN), Object Detection, AI Training and Infrastructure, and Distributed Resource Management
- **Security & Privacy:** AI Security and Privacy, Information Security and Privacy Analysis, Data Governance, Security and Privacy Laws/Regulations, Identity and Access Management, DevSecOps, Cybersecurity, Cryptography
- **Software Engineering:** Requirement Engineering and Analysis, Software Design and Development, Software Testing, Software Deployment and Maintenance, DevOps, Formal Methods, Formal Specification and Verification, Model Checking
- **Decentralized Applications:** Blockchain, Bitcoin, Ethereum, Hyperledger, Smart Contract, Solidity, Consensus Mechanisms, Self-Sovereign Identity (SSI), Verifiable Credential (VC), Decentralized Identifier (DID)

Academic Leadership

Jan '25 - Now **Undergraduate Studies Committee (Committee Members)** *CMKL University, Bangkok, TH*

Served as the primary governing body for the academic oversight and quality assurance of undergraduate programs.

Responsible for the systematic review and development of the curriculum to ensure academic rigor, relevance, and alignment with institutional goals.

Tasked with approving new course offerings, revising existing syllabi, and establishing clear degree requirements to ensure students are on a viable path toward graduation.

Upheld academic standards by managing student grievances, overseeing academic appeals, and monitoring overall student progress.

Ensured a consistent, fair, and high-quality educational experience for all undergraduate students by balancing administrative policy with pedagogical needs.

Jul '24 - Jul '26 **Finance Committee (Committee Members)** *CMKL University, Bangkok, TH*

Responsible for the fiscal stewardship and long-term economic stability of the institution.

Oversees the setting of tuition and fees, manages the distribution of scholarship funds, and monitors the university's endowment and investment portfolios to ensure sustainable growth.

Tasked with conducting regular financial audits, monitoring expenditures to prevent deficits, and assessing financial risks that could impact the institution's viability.

Ensure that the university remains solvent and capable of providing a high-quality educational environment by balancing prudent fiscal management with strategic investment.

Nov '25 - Now **President, JAIST-Thai Alumni Association** *JAIST, Ishikawa, JP*

Serve as the primary liaison between the university administration and its global network of graduates, acting as the chief representative of the alumni body.

Provide strategic leadership, presiding over board meetings and overseeing the implementation of initiatives designed to foster lifelong engagement and loyalty to the institution.

Organize key networking events, such as reunions and homecoming celebrations, and promoting mentorship programs that bridge the gap between alumni and current students.

Ensure a sustainable, mutually beneficial relationship that enhances the institution's reputation and supports its long-term growth by advocating for the interests of graduates and championing the university's mission.

Teaching and Mentoring Experience

Teaching

Instructor **SEC-101: Data and Information Fundamentals****Required *B.Eng. in AiCE, CMKL University*

Guided students in exploring the fundamental concepts of data and information, including data sensitivity, types, and representations. Additionally, taught students how to properly handle data and information from public sources through the processes of data acquisition, preparation, and cleaning.

No. of Credits: 2 Credits
Semester Offered: Spring 2025, Fall 2025, Spring 2026 (Assessment Only)
Cumulative No. of Students Enrolled: 104 Students

Instructor **SEC-201: Data Privacy, Security, and Integrity****Required *B.Eng. in AiCE, CMKL University*

Taught students how to implement basic cryptography, security protections, privacy preservation, and integrity assurance mechanisms, enabling them to protect sensitive data within any information processing system.

No. of Credits: 4 Credits
Semester Offered: Spring 2024, Fall 2024 (Assessment Only), Spring 2025, Fall 2025, Spring 2026 (Assessment Only)
Cumulative No. of Students Enrolled: 123 Students

Instructor **SEC-202: Secure Startup** *B.Eng. in AiCE, CMKL University*

Taught students how to establish a startup company with a focus on security awareness. This competency requires students to explore how to incorporate security controls throughout various parts of an organization, rather than limiting them to the system product.

No. of Credits: 4 Credits
Semester Offered: Spring 2026
Cumulative No. of Students Enrolled: 10 Students

Instructor **SEC-204: Security Policy and Processes** *B.Eng. in AiCE, CMKL Unversity*

Taught students to operate as future management personnel by providing an understanding of high-level security programs within large organizations. Developed students' skills in establishing a comprehensive set of security policies and processes supported by evidence.

No. of Credits: 4 Credits
Semester Offered: Fall 2024, Spring 2025 (Assessment Only)
Cumulative No. of Students Enrolled: 19 Students

Instructor **SEC-205: Distributed Ledgers and Blockchain** *B.Eng. in AiCE, CMKL Unversity*

Guided students in becoming familiar with the development of Web3.0 and other blockchain-related applications. Additionally, taught the fundamental concepts of blockchain technology and how to implement smart contracts on the Ethereum network using the Solidity programming language.

No. of Credits: 4 Credits
Semester Offered: Fall 2024, Spring 2025 (Assessment Only), Spring 2026
Cumulative No. of Students Enrolled: 33 Students

Instructor **SEC-301: Security Challenges in Modern AI Systems** *B.Eng. in AiCE, CMKL Unversity*
**Required

Led the exploration of security challenges in modern AI systems, including AI-specific attacks, security threats, and protective solutions. Additionally, taught students how to analyze attack procedures from academic research papers and real-world incidents.

No. of Credits: 2 Credits
Semester Offered: Spring 2024, Fall 2024 (Assessment Only), Spring 2025, Fall 2025 (Assessment Only), Spring 2026
Cumulative No. of Students Enrolled: 117 Students

Instructor **AIC-305: Bio-Inspired AI** *B.Eng. in AiCE, CMKL Unversity*

Developed a curriculum for students to explore AI/ML approaches that imitate collective behaviors in nature, such as genetic algorithms, ant colony optimization, and bird flocking. Taught students how to explore and implement these approaches to solve optimization problems.

No. of Credits: 4 Credits
Semester Offered: Fall 2025, Spring 2026 (Assessment Only)
Cumulative No. of Students Enrolled: 16 Students

Instructor **CMKL 18-631: Introduction to Information Security** *M.Sc. in ECE & AiCE, CMKL Unversity*

Taught students the theoretical and practical foundations of information security, covering basic computer security, attacks, basic cryptography, network security, infrastructure security, security governance, and security management. This course is broader, but deeper than undergraduate courses.

No. of Credits: 12 Credits
Semester Offered: Fall 2024, Fall 2025
Cumulative No. of Students Enrolled: 6 Students

TA **Software Design Methodology course** *School of Information Science, JAIST*

Discussed and provided tutorial sessions for weekly exercises to graduate students. Criticized and evaluated students' presention of their term project. Participated in the reviewing and grading activities of the term report with the course instructor.

Duration: Dec 2021 - Feb 2022
Instructor: Prof. Toshiaki Aoki, Ph.D.

TA **Software Engineering course** *International School of Engineering, Chulalongkorn University*

Prepared and provided support during the lectures, addressing any questions or concerns raised by thestudents. Facilitated group activities in active and flip classrooms to enhance the students' learning experience. Participated in term project presentation sessions, offering constructive criticism and valuable feedbackto students, aiming to enhance the quality of their work.

Duration: Jan 2017 - Dec 2017
Instructor: Assoc. Prof. Nakornthip Prompoon

TA **Software Engineering course** *International School of Engineering, Chulalongkorn University*

Prepared and provided support during the lectures, addressing any questions or concerns raised by thestudents. Facilitated group activities in active and flip classrooms to enhance the students' learning experience. Participated in term project presentation sessions, offering constructive criticism and valuable feedbackto students, aiming to enhance the quality of their work.

Duration: Jan 2017 - Dec 2017
Instructor: Assoc. Prof. Nakornthip Prompoon

TA **Software and System Analysis course** *Dept. of Computer Engineering, Chulalongkorn University*

Prepared and reviewed lecture materials from instructors every week. Participated in the reviewing and grading activities of students' homeworks and projects with a supportfrom the course instructor. Participated in the preparation of course materials for visually-impaired students by creating a textualmaterial from textbooks and lecture slides and generating braille manuscripts.

Duration: Jan 2017 - May 2017
Instructor: Assoc. Prof. Twittie Senivongse, Ph.D., Assoc. Prof. Nakornthip Prompoon

TA **Python Programming course** *Faculty of Engineering, Chulalongkorn University*

Facilitated and assisted in lectures of a section of 50+ students. Researched and answered student questions to clarify their misunderstanding. Gave advice and instruct programming lab sessions in the course. Reviewed and prepared solutions for quizzes in the course. Graded mid-term and final exams that have a clear and fix answers with a close supervision of the courseinstructor.

Duration: Jan 2016 - Dec 2016
Instructor: Assoc. Prof. Mandhana Prakansamut

Mentoring

M.Sc. Thesis **AI-Powered Property-Level Auditing For Solidity Smart Contracts**
Kittamook Phiromswat

Status: Ongoing (Aug '25 - Now)
Abstract: Although blockchain technology has received less hype in recent years, it has become a crucial backend protocol for many critical systems. Most blockchain implementations are still built using Solidity-based smart contracts, with ERC and NFT tokens being two of the most common standards. However, ensuring that implemented smart contracts fully comply with established standards and best practices remains a significant challenge. In this project, we aim to develop an AI-powered auditing platform that leverages large language models (LLMs) to automatically analyze and audit smart contracts against recognized standards and recommendations.

URD Year 1 **WPB - Wealth Playbook**
Natdanai Vorarattanavivich, Radit Srisathaporn, Thanat Vithyanarakul

Status: Completed (Aug '25 - May '26)
Abstract: Financial investment has become increasingly popular among younger generations, as the potential benefits attract many new investors to enter the market. However, it remains challenging for young individuals who wish to start investing in funds or assets, as there are limited opportunities for them to experiment and learn without financial risk. Currently, most financial institutions only offer the option to initiate a wealth portfolio, requiring new investors to commit real money upfront. These institutions typically suggest investment options based

on standardized questionnaires, which are often too generic and fail to accurately reflect each investor's true interests or preferences. In this project, we aim to leverage the versatile capabilities of large language models (LLMs) to develop an AI-powered financial advisor in the form of a web application. The application will allow users to create personalized investment portfolios through a combination of structured questionnaires and open-ended responses. The AI model will analyze both the questionnaire answers and free-text inputs to recommend suitable funds or assets aligned with the user's interests. Furthermore, the application will feature a mock trading environment, enabling users to simulate real-time trades using virtual money. This will allow both novice and experienced investors to practice trading strategies safely, without the risk of financial loss. Ultimately, this project aims to promote financial literacy and encourage more young people to explore and gain hands-on experience in investment and portfolio management.

URD Year 2

ScheDool: AI-Assisted Class Scheduling System with Multi-Facet Constraints

Nunthatinn Veerapaiboon, Thanawin Pattanaphol, Atchariyapat Sirijirakarnjareon, Petch Suwapun, Nachayada Pattaratichakonkul

Status: Completed (Aug '25 - May '26)

Abstract: In most medium- and large-sized schools worldwide, classroom scheduling presents a recurring critical challenge. Since schools must deliver a wide range of subjects each semester (typically 20-30 subjects across multiple student cohorts), preparing schedules is a demanding task. Teachers' availability and environmental factors impose strict constraints, making the scheduling process highly complex. Although existing optimization methods, such as heuristic search and traditional optimization techniques, have been applied, they often prove unsuitable in school environments where constraintsa re non-standard and change rapidly. In this project, we aim to implement an AI-assisted classroom scheduling system capable of handling both hard and soft constraints to generate an optimal schedule using reinforcement learning techniques. The constraints, along with each teacher's workload, will be encoded into the AI model to evaluate and classify feasible schedules. Furthermore, the project will develop an AI model to help formulate a structured set of constraints, enabling the system to adapt flexibly to diverse scheduling requirements.

URD Year 3

An Agentic AI Architecture for Real-Time PM2.5 Monitoring, Forecasting, and Source Attribution in Northern Thailand

Chavakorn Arunkunarax, Chutikarn Kanchanaart, Kasidith Saetang

Status: Completed (Aug '25 - May '26)

Abstract: Northern Thailand experiences severe seasonal PM2.5 pollution driven by biomass burning and complex atmospheric transport, yet operational forecasting systems remain limited by sparse monitoring networks, substantial data gaps, and models that lack physical grounding. This project presents an agentic AI framework that integrates four specialist pipelines (data gap filling, short term PM2.5 forecasting, forward smoke transport modelling, and inverse source attribution) into a unified, fault tolerant operational system orchestrated by a LangGraph based LLM relay. A four stage hybrid gap filling framework combining linear interpolation, PCHIP, Kalman state space smoothing, and Histogram based Gradient Boosting recovers 175,324 missing observations across 136 monitoring stations, improving average completeness from 45.7% to 55.4%. A physics informed SVR PICNN architecture produces hourly t+1 and t+24 spatial PM2.5 forecast fields over a 40×46 grid under an Advection Diffusion Reaction regularisation constraint, with automated breach alerting via LINE and structured government reports. A GATv2 graph neural network built on a Lagrangian transport matrix achieves $R^2 = 0.814$ on held out downwind pixels under directional validation, nearly doubling the physics only baseline ($R^2 = 0.416$). A three stage inverse source attribution pipeline comprising spatial clustering to reduce the transport operator condition number from $\kappa \approx 17,400$ to $\kappa \approx 32$, NNLS warm start initialisation, and MLP neural residual correction achieves Spearman $\rho = 0.429$ on real Himawari 8 AOD observations from the March 2024 burning episode, a 54% improvement over NNLS alone. A natural language policy playground agent translates live attribution and forecast outputs into actionable briefings for decision makers. The system demonstrates that an agentic architecture with an LLM orchestrator can effectively unify heterogeneous physics informed AI pipelines into a coherent, extensible environmental monitoring system.

Outcomes: Coauthored and Published [9, 10, 11, 12].

Internship

A Multi-floor Indoor Position System using Wi-Fi Signals with ML Approaches
Burin Intachuen, Mhadhanagul Charoenphon, Tanakorn Mankhetwit

Status: Completed (Jun '24 - Jun '25)
Abstract: An Indoor Positioning System (IPS) is an effort to utilize advanced signal processing to support localization within buildings or enclosed environments where satellite-based signals, like Global Positioning Systems (GPS) or Global Navigation Satellite Systems (GNSS), are unavailable. The fingerprinting technique is a prominent solution for creating radio maps and positioning users using signals such as Wireless Fidelity (Wi-Fi) or Bluetooth Low Energy (BLE) through Received Signal Strength Indicator (RSSI) values mapped across a radio grid. Machine Learning (ML) has been applied to classify users' positions based on RSSI values. However, the performance of previous ML-based fingerprinting works has proven insufficient for practical, real-world use cases. In this project, we thoroughly analyze the parameters or environmental factors of IPS to identify an optimal solution that maximizes the performance of ML-based IPS. We present findings on the ideal parameters and appropriate ML models for multi-floor IPS, providing valuable insights for researchers and practitioners seeking to develop accurate IPS solutions in diverse environments.
Outcomes: Coauthored and published [6].

Cooperative Education

Time Reduction for Collecting Fingerprint Data in Indoor Positioning Systems with Generated Synthetic Data by Ensemble Models and GANs
Prab Wongsekleo

Status: Completed (Mar '24 - Dec '24)
Abstract: Nowadays, the demand for IPS is growing due to the increasing need for accurate indoor location services in applications. The IPS fingerprint techniques are widely popular because they offer high accuracy. However, the process of collecting fingerprint data is labor-intensive and time-consuming. This study aims to alleviate the burden of data collection by generating synthetic data using Machine Learning (ML) and Generative Adversarial Networks (GANs). To create ML synthetic data, we used a dataset containing RSSI values and coordinates. Various regression models were trained using Randomized Search for hyperparameter tuning. The best models were then combined into an ensemble method using Voting Regressor. This ensemble model was used to predict RSSI values for new, synthetic coordinates generated around each reference point, forming the synthetic dataset. We combined synthetic data with actual data from the IPS fingerprint RSSI collecting from the mobile application to create three new datasets with varying ratios of actual to synthetic data from 90:10 to 10:90. These combined datasets were used to train models including Random Forest, Decision Tree, Linear Regression, Gradient Boosting, and K Nearest Neighbors. Our results indicate that models trained on combined datasets significantly reduce the mean distance error (MDE) compared to those trained solely on actual data. This improved performance, however, comes with trade-offs in terms of slightly increased training time, prediction time, and memory usage during both training and prediction phases.
Outcomes: Coauthored and published [4]

Cooperative Education

Building RSSI-based Indoor Positioning Fingerprint Maps using Android-based Coordination
Lapat Nakpaen

Status: Completed (Mar '24 - Dec '24)
Abstract: Indoor positioning systems (IPS) have emerged as a critical technology for location-based applications. Developing IPS system is challenging since technologies for outdoor positioning seem to be limited in indoor environment. Fingerprinting is a technique to build an offline map and compare the current location with it. While fingerprinting remains a popular technique for indoor positioning, its reliance on extensive manual data collection is a significant challenge. These data points can be the Received Signal Strength Indicator (RSSI) of the Wi-Fi signal or signals from the triangulation of Bluetooth/cellular beacons. However, the conventional grid-based fingerprint technique is facing challenges when the target area is being large. This research proposes an automated approach to gathering Wi-Fi RSSI data for building indoor positioning maps using the Android-based triangulated coordination. Our method demonstrates a substantial reduction in data collection time (79%) compared to traditional grid-based techniques. The resulting dataset effectively supports machine learning

models for indoor positioning, achieving a Mean Distance Error (MDE) of less than 2 meters different.
Outcomes: Coauthored and published [5]

URD-1 **Med-D: Decentralized Medical Application**
Nunthatinn Veerapaiboon, Thanawin Pattanaphol, Atchariyapat Sirijirakarnjareon, Petch Suwapun

Status: Completed (Aug '24 - May '25)
Abstract: Health information management in Thailand is characterized by significant data fragmentation across diverse public and private healthcare providers employing non-interoperable Electronic Health Record (EHR) systems. This systemic lack of integration hinders continuity of care, contributes to diagnostic delays, necessitates redundant investigations, and poses risks associated within complete patient histories, such as missing allergy data. This report details the design and prototype implementation of Med-D, a decentralized health record management system proposed to address these challenges within the Thai context. Med-D utilizes W3C Distributed Identifiers (DIDs) for cryptographic identity management of patients and providers, coupled with a simulated blockchain ledger, managed via an Agent service, for storing immutable integrity proofs (SHA-256 hashes) of medical records. A central coordinating API orchestrates key workflows, including DID registration, hash generation during record issuance by simulated EHRs, ledger updates via the Agent, and secure record delivery to a patient-controlled digital Wallet. Furthermore, a verification workflow enables patients to share specific, integrity-verified records with new providers upon consent. The implementation demonstrates the technical feasibility of core Med-D functionalities within a controlled HTTP environment. By promoting data portability, verifiability, and patient control, this architecture offers a potential pathway to mitigate data silos and enhance the efficiency, safety, and patient-centricity of healthcare information exchange in Thailand.

URD-2 **Post-Call Quality Assurance for Contact Centers**
Chavakorn Arunkunarax, Chutikarn Kanchanaart, Natcha Soranathavornkul, Kasidith Saetang

Status: Completed (Aug '24 - May '25)
Abstract: Contact centers use predefined quality assurance (QA) criteria. Agent supervisors and QA teams currently evaluate calls manually, which is time-consuming–each evaluator reviews about 200 call recordings monthly. This project, Post-Call Quality Assurance for Contact Centers, utilizes a pre-trained ASR model optimized for Thai to perform speech-to-text transcription and speaker diarization. Manual QA criteria have been translated into computable formats (e.g., regular expression,propositional logic). An AI-based tone analysis model assesses phoneme-level features, while a text-based model evaluates call transcripts. All call analyses are conducted securely and with privacy preservation.

URD-2 **AURA: AI-Powered Unified Response and Analysis**
Kasidis Manasurangkul, Niracha Janavatana, Supakorn Etitum, Pon Yimcharoen, Shine Min Kha

Status: Completed (Aug '24 - May '25)
Abstract: Agents in contact centers are required to fill in call information in a Customer Relationship Management (CRM) system. Agents are unable to completely record everything from the call or provide much details in the CRM system due to heavy workloads. This project, AURA, utilizes a pre-trained ASR model optimized for Thai to perform speech-to-text transcription and speaker diarization. Documents in the knowledge base are preprocessed and indexed using natural language processing (NLP) and information retrieval techniques. A knowledge topic classification model is implemented to retrieve the most relevant documents related to the call transcript. An existing summarization model is adopted and fine-tuned to generate a call summary. The results are directly integrated into the existing CRM system through APIs.
Outcomes: Coauthored and published [7]

URD-1 **MaTravel: Matching Algorithm for Traveling**
Supakorn Etitum, Tanakit Jainwanalee, Uea-angkun Sriviritalertkul, Taha Utku Keler, Teetuch Thawinphrai

Status: Completed (Aug '23 - May '24)
Abstract: This project aims to develop a solution that helps reduce trip planning time, supports local businesses in Thailand, and prioritizes traveler safety. We chose to create a mobile application since it is the device most people are likely to have. The core feature of the application is trip planning, which allows both travelers and local guides to create personalized itineraries. Travelers can plan their own trips or request assistance from local guides, who can use the trip planner to design suitable travel experiences. To ensure quality and relevance, the system will include a matching algorithm that connects travelers only with local guides who have expertise in the selected province and share similar interests. Additionally, the application will feature a review section where users can evaluate planned trips, helping new users make informed decisions based on previous experiences.

Internship Jun '22 - Jul '22 **Internship Student Mentor** *JAIST, Ishikawa, JP*

Mentored on a project of an internship student from the India Institute of Technology Gandhinagar (IIT-GN) for two months. Gave advice and instruct the student on assignements and research activities. Reviewed and provided feedback on the student assignments.

Research and Publications

Conference

[1] **Charnon Pattiyanon**, and Twittie Senivongse. Quality Model for Assessing Object-Oriented Design Patterns Under Development. In *Proceedings of the 2017 18th IEEE/ACIS International Conference on Software Engineering, Artificial Intelligence, Networking and Parallel/Distributed Computing - SNPD 2017*, pages 377-383, 2017. Doi: 10.1109/SNPD.2017.8022749

[2] **Charnon Pattiyanon**, Toshiaki Aoki, and Daisuke Ishii. A Method for Detecting Common Weaknesses in Self-Sovereign Identity Systems Using Domain-Specific Models and Knowledge Graph. In *Proceedings of the 10th International Conference on Model-Driven Engineering and Software Development - MODELSWARD 2022*, ISBN 978-989-758-550-0; ISSN 2184-4348, pages 219-226, 2022. Doi: 10.5220/0010824900003119.

[3] **Charnon Pattiyanon**, and Toshiaki Aoki. Analysis and Enhancement of Self-sovereign Identity System Properties Compiling Standards and Regulations. In *Proceedings of the 8th International Conference on Information Systems Security and Privacy - ICISSP 2022*, ISBN 978-989-758-553-1; ISSN 2184-4356, pages 133-144, 2022. Doi: 10.5220/0010877300003120.

[4] Prab Wongsekleo, Lapat Nakpaen, Panarat Cherntanomwong, and **Charnon Pattiyanon**. Time Reduction for Collecting Fingerprint Data in Indoor Positioning Systems with Generated Synthetic Data by Ensemble Models and GANs. In *Proceedings of the 2024 19th International Joint Symposium of Artificial Intelligence and Natural Language Processing - iSAI-NLP 2024*, pp. 1-6, November 13-14, 2024. Doi: 10.1109/iSAI-NLP64410.2024.10799319.

[5] Lapat Nakpaen, Prab Wongsekleo, Panarat Cherntanomwong, and **Charnon Pattiyanon**. Building RSSI-based Indoor Positioning Fingerprint Maps using Android-based Coordination. In *Proceedings of the 2024 19th International Joint Symposium of Artificial Intelligence and Natural Language Processing - iSAI-NLP 2024*, pp. 1-6, November 13-14, 2024. Doi: 10.1109/iSAI-NLP64410.2024.10799385.

[6] Burin Intachuen, Mhadhanagul Charoenphon, Tanakorn Mankhetwit, and **Charnon Pattiyanon**. A Simplified Multi-Floor Classification-Based Indoor Positioning System Study. In *Proceedings of the 13th ASEAN Workshop on Information Science and Technology - AWIST 2025*, November 6-7, 2024, Ishikawa, Japan, 2025. [Online]. URL: https://hdl.handle.net/10119/20075.

[7] Kasidis Manasurangkul, **Charnon Pattiyanon**, Niracha Janavatana, Supakorn Etitum, Pon Yimchareon, and Shine Min Kha. A Controlled Framework for Generating Synthetic, Multi-Topic Thai Conversations for Healthcare Contact Centers. In *Proceedings of the 13th ASEAN Workshop on Information Science and Technology - AWIST 2025*, November 6-7, 2024, Ishikawa, Japan, 2025. [Online]. URL: https://hdl.handle.net/10119/20075.

[8] Pavinee Rerkjirattikal, Reveekiat Singhaphandu, **Charnon Pattiyanon**, and Sang Gyu Nam. A Human-Centric Decision Support Framework for Satisfaction Enhancement in Medical Staff Scheduling. In *Proceedings of the 13th ASEAN Workshop on Information Science and Technology - AWIST 2025*, November 6-7, 2024, Ishikawa, Japan, 2025. [Online]. URL: https://hdl.handle.net/10119/20075.

[9] Chutikarn Kanchanaart, Chavakorn Arunkunarax, Kasidith Saetang, and **Charnon Pattiyanon**. Physics-Constrained Fire Source Attribution from Sparse Satellite AOD via Spatial Clustering and Neural Residual Correction. In *Proceedings of the 23rd International Joint Conference on Computer Science and Software Engineering - JCSSE 2026, Accepted*, 2026.

[10] Chutikarn Kanchanaart, Chavakorn Arunkunarax, Kasidith Saetang, and **Charnon Pattiyanon**. Graph Attention Networks with Physics-Informed Transport for Fire Smoke Aerosol Prediction in Northern Thailand. In *Proceedings of the 23rd International Joint Conference on Computer Science and Software Engineering - JCSSE 2026, Accepted*, 2026.

[11] Kasidith Saetang, Chavakorn Arunkunarax, Chutikarn Kanchanaart, and **Charnon Pattiyanon**. A Multi-Stage Hybrid Gap-Filling Framework for Sparse PM2.5 Monitoring Stations in Northern Thailand. In *Proceedings of the 23rd International Joint Conference on Computer Science and Software Engineering - JCSSE 2026, Accepted*, 2026.

[12] Chavakorn Arunkunarax, Chutikarn Kanchanaart, Kasidith Saetang, and **Charnon Pattiyanon**. A Hybrid SVR-PICNN Framework for Physics-Informed PM2.5 Forecasting. In *Proceedings of the 23rd International Joint Conference on Computer Science and Software Engineering - JCSSE 2026, Accepted*, 2026.

[13] Pyae Linn, Zaw Linn Htet, Htoo Thet Naung, Htet Arkar Kyaw, **Charnon Pattiyanon**, and Tianwei Jing. myNRC-OCR: A Hybrid OCR Framework for Handwritten Myanmar NRCs Integrating YOLOv8, Tesseract LSTM, TrOCR, and Post-OCR Correction. In *Proceedings of the 23rd International Joint Conference on Computer Science and Software Engineering - JCSSE 2026, Accepted*, 2026.

Journal

[14] **Charnon Pattiyanon**, and Toshiaki Aoki. Compliance SSI System Property Set to Laws, Regulations, and Technical Standards. *IEEE Access*, 10:199370-99393, 2022. Doi: 10.1109/ACCESS.2022.3204112

Preprints

[15] Pon Yimcharoen, Supakorn Etitum, Kasidis Manasurangkul, and **Charnon Pattiyanon**. Modular AI Cascade for Thai Speech Recognition and Speaker Diarization for Healthcare-Related Call Recordings. *To Be Submitted*, 2026.

Academic Service

2023 - 2026 **Reviewer** for the International Conference on Fuzzy System and Data Mining (FSDM)

2023 - 2025 **Reviewer** for the Computer & Security journal (COSE), Elsevier

2023 **Reviewer** for the International Conference on Machine Learning and Intelligent Systems (MLIS)

2021 - 2022 **Sub-Reviewer** for the IEEE Pacific Rim International Symposium on Dependable Computing (PRDC)

2021 - 2022 **Sub-Reviewer** for the Conference on Formal Methods in Software Engineering (FormaliSE)

2021 **Sub-Reviewer** for the Theoretical Aspects of Software Engineering Conference (TASE)

Invited Talks and Seminars

Feb 4, 2026 **Panelist**, 'Cyber Ready Organization: Are We Really Prepared?' panel discussion during the BT Cybersecurity Executive Talk @ *BT Pod, True Digital Park, Bangkok, Thailand*

Dec 12, 2025 **Invited Speaker**, 'Trustworthy and Secure AI' during the AI Engineering and Innovation Summit 2025 @ *Club Siam Glowfish, Bangkok, Thailand*

Nov 6 - 8, 2025 **Invited Speaker**, 'JAIST Alumni Session' during the 13th ASEAN Workshop on Information Scienceand Technology (AWIST 2025), @ *MS Hall, Japan Advanced Institute of Science and Technology (JAIST), Ishikawa, Japan*

Aug 29, 2025 **Invited Speaker**, 'Emerging Technology: Artificial Intelligence', during the ACT University Introduction session @ *Assumption College Thonburi, Bangkok, Thailand*

Aug 8, 2025 **Panelist**, 'Teaching Opportunities and Challenges in the Era of AI' panel discussion, during the CMKL Instructor Training & Meet-Up @ *Bangkok Marriott Marquis Queen's Park, Bangkok, Thailand*

Jul 19 - 20, 2025 **Student Coaches**, The Cyber Warrior Hackathon 2025, held by Cyber Crime Investigation Bureau (CCIB) of Thailand and King Mongkut's University of Technology Thonburi (KMUTT), @ *Learning Exchange (LX) Building, KMUTT, Bangkok, Thailand*

Jul 5, 2025 **Invited Speaker**, 'AI Technology: Now & Then' during the CMKL Open House event @ *InterPass Academy, SiamScape Building, Bangkok, Thailand*

Jun 6, 2025 **Presenter**, The Thai LLM event held by the Ministry of Higer Education, Science, and Innovation (MHESI) and Siam.Ai @ *Prachomklao Building, MHESI Office, Bangkok, Thailand*

May 28, 2025 **Invited Speaker**, 'Leveraging AI and Decentralized Technology in Practical Settings with Cybersecurity Controls' during the collaborative seminar between National Broadcasting and Telecommunication (NBTC) and CMKL University @ *Sailom Auditorium 5021, Conference Hall Building, 2nd Floor, NBTC Office, Bangkok, Thailand*

Apr 24, 2025 **Panelist**, 'Powering Thailand 4.0: AI, Security, and Sustainable Innovation' panel discusssion during the Dell: AI Made Easy event @ *Grand Hyatt Erawan Bangkok, Bangkok, Thailand*

Dec 13, 2024 **Moderator**, 'AI and Digital Health' panel discusssion during the AI Engineering and Innovation Summit 2025 @ *the Ritz-Carlton Bangkok Hotel, Bangkok, Thailand*

Aug 7, 2024 **Invited Speaker**, 'Emerging Technology: AI' during the Senior Security Studies Program 2024 (SSSP 2024) @ *Strategic Studies Center, National Defense Studies Institute (NDSI), Chonburi, Thailand*

Dec 7-8, 2023 **Moderator**, 'Scalability and Security in AI-Driven Industrial Automation' panel discussion during the AI Engineering and Innovation Summit 2023 @ *Grand Hall, 3rd Floor (West), True Digital Park, Bangkok, Thailand*

Feb 22, 2023 **Assigned Speaker**, 'Security Weakness Analysis of Self-Sovereign Identity (SSI) Management Systems' during the joint seminar between JAIST's Aoki laboratory and Waseda University's Kishi laboratory @ *Seminar Room A, Hiinoki Cultural Complex, Ishikawa, Japan*

Feb 20, 2020 **Assigned Speaker**, 'Security and Privacy in Decentralized Identity Management' during the joint seminar between JAIST's Aoki laboratory and Waseda University's Ueda laboratory @ *Collaboration Room 6, JAIST, Ishikawa, Japan*

Media Coverage

May 30, 2024 Interview in Blue Tech Wave Media : *"From industry to academia: Dr. Charnon Pattiyanon's inspiring journey"*, during the BKNIX Peering Forum 2024 event @ *Grand Hall, 9th Floor, Carlton Hotel Sukhumvit, Bangkok, Thailand*

Working Experience

Aug '23 - Now **Assistant Director of Information Technology** *CMKL University, Bangkok, TH*

Overseen IT operations and supervise systems and IT staff.

Developed strategy and implement solutions related to the organization's IT infrastructure (Computer and information systems, security, organizational data, communication systems).

Assisted in preparation, manage, and track the IT department's annual budget.

Consulted senior-level stakeholders across the entire organization to identify business and technology needs and optimize the use of information technology.

Ensured smooth delivery and operation of IT services by monitoring the system's performance.

Created processes and standards for selection, implementation, and support of university-related IT systems.

Provided direction, guidance, and training to IT staff.

Technology Stack: Linex, Secure Shell, Docker, Kubernetes, Ray, SLURM

Sep '17 - May '19 **Technical Team Lead and Senior Software Engineer** *G-Able Co., Ltd., Bangkok, TH*

Implemented identity and access management solutions in customer sites.

Collaborated with customers and gather client requirements.

Developed an architecture and design the solution for customers.

Developed specification documents to propose custom solutions to customers.

Developed custom modules to identity and access management systems to provide single-sign on (SSO) features.

Led a team of five developers/engineers in enterprise-level projects.

Tracked project progress and ensure in-time delivery of projects.

Technology Stack: Java, Spring Framework, JSF, PrimeFaces, HTML, CSS, Oracle Identity and Access Management, ForgeRock Identity, Git, SVN, Linux, Solaris

Apr '14 - Oct '15 **ASP.NET/C# Web Developer** *Vevo Systems Co., Ltd., Bangkok, TH*

Developed e-commerce websites using ASP.NET/C# and Bootstrap framework.

Customized front-end intefaces of the e-commerce website to match with SME clients' branding using CSS and Javascript.

Participated in the full stack development tasks with the developer team using Scrum methodology.

Worked closely with SME clients to gather and extract system requirements for product customization.

Participated in the client training session to walkthrough the company product.

Held an on-call support via a ticketing system to support SME clients with product-related issues.

Technology Stack: ASP.NET, C#, Bootstrap, HTML, CSS, Git, SVN

Jun '13 - Jul '13 **Windows Application Developer Intern** *Microsoft Innovation Center, Bangkok, TH*

Worked closely with a team of interns to develop Windows 8 and Windows Phone applications using ASP.NET and C# as a programming framework.

Submitted the developed application to the Windows application store.

Developed a Windows 8 rhythm/music game application using Unity and C#.

Technology Stack: ASP.NET, C#, Unity

Language

- **Thai**: Native Language, Mother Tongue
- **English**: Fluent for academic and professional communication (TOEFL: 73, TOEIC L&R: 950)
- **Japanese**: Able to make simple communication in daily life.

Reference

[1] **Assoc. Prof. Supan Tungjitkusolmun, Ph.D.**

President, CMKL University, Bangkok, Thailand

Email Address: supan@cmkl.ac.th
Relationship: Organzation Head

[2] **Assoc. Prof. Akkarit Sangpetch, Ph.D.**

Chief Finance Officer, and Program Director, CMKL University, Bangkok, Thailand

Email Address: akkarit@cmkl.ac.th
Phone Number: (+66) 083 096 3916
Relationship: Current Supervisor

[3] **Prof. Toshiaki Aoki, Ph.D.**

Professor, Division of Transdisciplinary Sciences, JAIST, Ishikawa, Japan
Email Address: toshiaki@jaist.ac.jp
Relationship: Past Advisor

[4] **Assoc. Prof. Twittie Senivongse, Ph.D.**

Associate Professor, Department of Computer Engineering, Faculty of Engineering, Chulalongkorn University, Bangkok, Thailand
Email Address: twittie.s@chula.ac.th
Relationship: Past Advisor

Declaration Statement

I hereby solemnly affirm that all the information provided above is accurate and true to the best of myknowledge. I take full responsibility for the accuracy and authenticity of the stated details. Any inquiries orrequests for classification regarding this information may be directed to me via email or phone.

Last Modified Date: Thursday, May 21, 2026

Charnon Pattiyanon, Ph.D.