

Charnon Pattiyanon, Ph.D.

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Executive Summary

I am currently working as a researcher in academia with a keen interest in all aspects of **software engineering**. My expertise lies in **information security**, **personal data protection**, and **identity and access management**. In addition, I am active in communities that use **formal methods**, including *formal specification*, *formal verification*, *model checking*, and *static program analysis*. I am also deeply passionate about **emerging decentralized technologies** such as *blockchain*, *Bitcoin*, *decentralized and self-sovereign identity*, *consensus mechanisms*, and other forms of *decentralized applications*. Furthermore, I am actively expanding my knowledge and skill set in **natural language processing (NLP)** and **artificial intelligence (AI) engineering and infrastructure**.

Research Interest

- **Software Engineering:** Requirement Engineering, Software Design and Development, Software Testing, Software Deployment and Maintenance, Formal Methods, Formal Specification and Verification, Model Checking
- **Information Security and Privacy:** Security Analysis, Security Governance, Legislation, Authentication and Access Control, Identity and Access Management, Cyber-security, AI Security, Cryptography
- **Decentralized Technology:** Blockchain, Bitcoin, On-chain/Off-chain Storage, Decentralized Applications, Consensus Mechanisms, Self-Sovereign Identity
- **AI Engineering and Infrastructure:** High Performance Computing for AI, Distributed AI Training and Inference, Distributed Resource Management, AI Job Scheduling
- **AI Paradigms and Applications:** Natural Language Processing, Information Retrieval, Recommender Systems, Text Classification, Large Language Model, Foundation Models, Automated Speech Recognition, Generative Adversarial Networks, Object Detection

Education

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|--------------|--|---------------------|
| Ph D | Japan Advanced Institute of Science and Technology , Information Science
• GPA: 2.91 / 3.00
• Academic Advisor: Prof. Toshiaki Aoki, Ph.D. 
• Doctoral Dissertation Title: Security Weakness and Privacy Preservation Analysis of SSI Management Systems using Information Retrieval and System Modeling
• Scholarship: University-Recommended MEXT (Monbukagakusho) | Oct 2019 - Mar 2023 |
| M Sc | Chulalongkorn University , Software Engineering
• GPA: 4.00 / 4.00 (Top of the Class)
• Academic Advisor: Assoc. Prof. Twittie Senivongse, Ph.D. 
• Master Thesis Title: Quality Assessment Model for Object-Oriented Design Patterns Under Development | Oct 2015 - Sep 2017 |
| B Eng | King Mongkut's University of Technology Thonburi , Computer Engineering (International Program)
• GPA: 3.41 / 4.00 (Second-Class Honored)
• Academic Advisor: Assoc. Prof. Sanan Srakaew, Ph.D. 
• Senior Project Title: Smart Sign-Language Dictionary Mobile Application using Image Processing | Aug 2010 - Sep 2014 |

Academic Leadership and Experience

Instructor, CMKL University

Bangkok, TH
Aug 2023 – Present

- Being an instructor for several undergraduate courses in Cybersecurity, including:
 - SEC-101: Data and Information Fundamentals (2 Credits)
 - SEC-201: Data Privacy, Security, and Integrity (4 Credits)
 - SEC-204: Security Policy and Processes (4 Credits)
 - SEC-205: Distributed Ledger and Blockchain (4 Credits)
 - SEC-301: Security Challenges in Modern AI Systems (2 Credits)
- Being an instructor for an undergraduate course in AI, including:
 - AIC-305: Bio-Inspired AI (4 Credits)
- Being an instructor for a graduate course in Cybersecurity, including:
 - 18-631: Introduction to Information Security (4 Credits)
- Prepare course materials, assessment items, and grading during the semester.
- Develop curriculum / program content & offer at least 12 credits per semester on related competencies.
- Develop and deliver engaging lectures, seminars, and laboratory sessions.
- Supervise student projects, theses, and dissertations.
- Participate in academic advising and mentoring of students to foster their academic and personal growth.
- Contribute to curriculum development and program enhancement in line with industry trends and academic standards.

Internship Student Mentor, Japan Advanced Institute of Science and Technology

Ishikawa, JP
Jun 2022 – Aug 2022

- I was selected as a mentor of an internship student from the India Institute of Technology Gandhinagar (IIT-GN) for 2 months.
- I gave advice and instructed the student on assignments and research activities.
- I reviewed and provided feedback on the student assignments.

Teaching Assistant, Japan Advanced Institute of Science and Technology

Ishikawa, JP
Dec 2021 – Feb 2022

- I was selected as one of the teaching assistants in the Software Design Methodology course for graduate students.
- I was responsible to discuss and review weekly exercises by students.
- I had an opportunity to criticize and evaluate students' presentations of the term project.
- I participated in reviewing and evaluating of term reports with course instructor.

Teaching Assistant, Chulalongkorn University

Bangkok, TH
Jan 2017 – May 2017

- I was selected as one of the teaching assistants in Software and System Analysis and Design course of 120+ of 3rd year undergraduate students.
- I was responsible to prepare and review weekly learning material from instructors.
- I was participated in grading and reviewing students' homework and projects along the course with a support from course instructor.
- I had an opportunity to participate in the preparation of course materials for visually impaired students by creating a textual material from the textbooks and slides for generating braille manuscripts.

Teaching Assistant, Chulalongkorn UniversityBangkok, TH
Jan 2016 – Dec 2016

- I was selected as one of the teaching assistants in Python programming course of 1st year undergraduate students.
- I was responsible to facilitate and assist in the lecture of a section of 50+ students by responding to student questions and clarifying student misunderstanding.
- I had an opportunity to give advice and instruct a section of programming lab.
- I was responsible to review and prepare the solution for quizzes in the course.
- I was responsible to grade and review a score for the objective examination (both mid-term and final).

Work Experience

Assistant Director of IT, CMKL UniversityBangkok, TH
Aug 2023 – Present

- Oversee IT operations and supervise systems and IT staff.
- Develop strategy and implement solutions relates to the organization's IT infrastructure (computer and information systems, security, organizational data, communication systems)
- Assist in preparation, manage, and track the IT department's annual budget.
- Consult senior-level stakeholders across the entire organization to identify business and technology needs and optimize the use of information technology.
- Ensure smooth delivery and operation of IT services by monitoring the system's performance.
- Create processes and standards for selection, implementation, and support of university-related IT systems.
- Provide direction, guidance, and training to IT staff.
- **Technology Stack:** Linux, Secure Shell, Docker, Kubernetes, Ray, SLURM

Team Lead and Senior Software Engineer, G-ABLE Co., Ltd.Bangkok, TH
Sep 2017 – May 2019

- Implement identity and access management solutions in customer sites.
- Collaborate with customers and gather client requirements.
- Develop an architecture and design the solution for customers.
- Develop specification documents to propose a custom solution to the customer.
- Develop custom modules to identity and access management systems to provide Single Sign-On (SSO) features.
- Lead a team of 5 developers in enterprise-level projects.
- Manage project progress and ensure that the project can be delivered on time.
- **Technology Stack:** Java, Spring Framework, JSF, PrimeFaces, HTML, CSS, Oracle Identity and Access Management, ForgeRock Identity, Git, SVN, Linux, Solaris

Web Developer, Vevo Systems Co., Ltd.Bangkok, TH
Apr 2014 – Oct 2015

- Develop e-commerce websites using ASP.NET C# and Bootstrap framework.
- Customize front-end interfaces of the e-commerce website to match with SME clients' branding using CSS and Javascript.
- Participate in the full stack development tasks with the team using the Scrum development processes.
- Work closely with SME clients to gather and extract system requirements.
- Participate in the client training session to walk-through the company product.
- Hold an on-call support via a ticketing system to support SME clients with website-related issues.
- **Technology Stack:** ASP.NET, C#, Bootstrap, HTML, CSS, Git, SVN

Windows Application Developer Intern, Microsoft Innovation Center

Bangkok, TH
Jun 2013 – Jul 2013

- Being selected as a participant in an internship program.
- Participate with the team to develop Windows 8 applications using ASP.NET and C# as programming languages.
- Participate with the team to develop Windows Phone applications using ASP.NET and C# as programming languages.
- Submit the developed application to the Windows application store.
- Participate with the team to develop a rythm/music game, using Unity and C#.
- **Technology Stack:** ASP.NET, C#, Unity

Publications

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

Nov 2024

Lapat Nakpaen, Prab Wongsekleo, Panarat Cherntanomwong, **Charnon Pattiyanon**

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

[10.1109/iSAI-NLP64410.2024.10799385](https://doi.org/10.1109/iSAI-NLP64410.2024.10799385) 

Reduce Time-Consuming Collecting Fingerprint Data in Indoor Positioning Systems with Generated Synthetic Data by Ensemble models and GANs

Nov 2024

Prab Wongsekleo, Lapat Nakpaen, Panarat Cherntanomwong, **Charnon Pattiyanon**

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

[10.1109/iSAI-NLP64410.2024.10799319](https://doi.org/10.1109/iSAI-NLP64410.2024.10799319) 

Compliance SSI System Property Set to Laws, Regulations & Technical Standards **Charnon Pattiyanon**, Toshiaki Aoki

Sep 2022

IEEE Access, vol. 10, pp. 99370-99393, 2022

[10.1109/ACCESS.2022.3204112](https://doi.org/10.1109/ACCESS.2022.3204112) 

Analysis and Enhancement of Self-sovereign Identity System Properties **Compiling Standards and Regulations**

Feb 2022

Charnon Pattiyanon, Toshiaki Aoki

Proceedings of the 8th International Conference on Information Systems Security and Privacy, ICISPP 2022, pp. 133-144, 2022

[10.5220/0010877300003120](https://doi.org/10.5220/0010877300003120) 

A Method for Detecting Common Weaknesses in Self-Sovereign Identity Systems **Using Domain-Specific Models and Knowledge Graph**

Feb 2022

Charnon Pattiyanon, Toshiaki Aoki, Daisuke Ishii

Proceedings of the 10th International Conference on Model-Driven Engineering and Software Development, MODELSWARD 2022, pp. 291-226, 2022

[10.5220/0010824900003119](https://doi.org/10.5220/0010824900003119) 

Quality Model for Assessing Object-Oriented Design Patterns Under Development **Charnon Pattiyanon**, Twittie Senivongse

Jun 2017

Proceedings of the 2017 18th International Conference on Software Engineering, Artificial Intelligence, Networking, and Distributed/Parallel Computing, SNPD 2017, Kanazawa, Japan, pp. 377-383, 2017

[10.1109/SNPD.2017.8022749](https://doi.org/10.1109/SNPD.2017.8022749) 

Academic Participations and Services

International Conferences

- Reviewer of the 10th International Conference on Fuzzy Systems and Data Mining, **FSDM 2024**. (June 2024)
- Reviewer of the 9th International Conference on Fuzzy Systems and Data Mining, **FSDM 2023**. (July 2023)
- Reviewer of the 5th International Conference on Machine Learning and Intelligent Systems, **MLIS 2023**. (June 2023)
- Sub-Reviewer of the 27th IEEE Pacific Rim International Symposium on Dependable Computing, **PRDC 2022**. (August 2022)
- Sub-Reviewer of the 10th Conference on Formal Methods in Software Engineering, **FormaliSE 2022**, Co-hosted with ICSE 2022. (February 2022).
- Presenter at the 8th International Conference on Information Systems Security and Privacy, **ICISSP 2022**. (February 2022)
- Presenter at the 10th International Conference on Model-Driven Engineering and Software Development, **MODELSWARD 2022**. (February 2022)
- Sub-Reviewer of the 26th IEEE Pacific Rim International Symposium on Dependable Computing, **PRDC 2021**. (August 2021)
- Sub-Reviewer of the 15th Theoretical Aspects of Software Engineering Conference, **TASE 2021**. (April 2021).
- Sub-Reviewer of the 9th Conference on Formal Methods in Software Engineering, **FormaliSE 2021**, Co-hosted with ICSE 2021. (February 2021).
- Participant in the 42nd International Conference on Software Engineering, **ICSE 2020**, (June 27-29, 2020).

International Journal

- Reviewer of 2 Computer & Security Journal, **COSE**, El Sevier. (2025)
- Reviewer of 2 Computer & Security Journal, **COSE**, El Sevier. (2024)
- Reviewer of 1 Computer & Security Journal, **COSE**. El Sevier. (2023)

Talks and Seminars

- Speaker in the topic of "Leveraging AI and Decentralized Technologies in Practical Settings with Cybersecurity Controls" during the seminar on the collaboration between National Broadcasting and Telecommunication Commission (NBTC) and CMKL University, Sailom Auditorium 5021, Conference Hall Building, 2nd Floor, NBTC Office, Bangkok, Thailand (May 28, 2025)
- Panelist in the panel discussion on the topic of "Powering Thailand 4.0: AI, Security, and Sustainable Innovation" at the Dell: AI Made Easy event, Grand Hyatt Erawan Bangkok Hotel, Bangkok, Thailand (April 24, 2025)
- Moderator in the panel discussion on the topic of "[AI and digital health](#)" at the AI Engineering and Innovation Summit 2024, the Ritz-Carlton Bangkok Hotel, Bangkok, Thailand (December 13, 2024)
- Guest Speaker in the topic of "Emerging Technology: AI" at the Senior Security Studies Program 2024, Strategic Studies Center, National Defense Studies Institute (NDSI), Chonburi, Thailand (August 7, 2024)
- Interviewee in the topic of "[From industry to academia: Dr. Charnon Pattiyanon's inspiring journey](#)," Interview with Blue Tech Wave Media, during BKNIX Peering Forum 2024 Event, Grand Hall, Floor 9, Carlton Hotel Sukhumvit. (May 30-31, 2024)
- Moderator in the "[Scalability and Security in AI-Driven Industrial Automation](#)" panel discussion of the AI Engineering and Innovation Summit 2023, Grand Hall, Floor 3 (West), True Digital Park, Bangkok, Thailand (December 7-8, 2023)
- Speaker in the join seminar with Kishi Laboratory of Waseda University, Seminar Room A, Hiinoki Cultural Complex, Kanazawa, Ishikawa, Japan. (February 22, 2023)
- Speaker in the joint seminar with Ueda Laboratory of Waseda University, Collaboration Room 6, JAIST. (February 20, 2020)

Technologies and Skills

Programming Skill: Python, C, C++, ASP.NET, C#, Java EE, Spring Framework, HTML, CSS, JSF, PrimeFaces, Bootstrap, AngularJS, JavaScript, jQuery, SQL, Solidity

Machine Learning and AI Skills: Pandas, NumPy, Sklearn, NLTK, PyTorch, Seaborn, Matplotlib

Platforms and Tools: Linux, Kali Linux, Docker, Kubernetes, Ray, SLURM, MetalLB, Ingress, Oracle IAM, ForgeRock Identity, Nmap, Metasploit, GIT, SVN, Jenkins, GitHub Workflow/Actions

Languages

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

References

Assoc. Prof. Supan Tungjitusolmun, Ph.D., President
CMKL University, Bangkok, Thailand

- **Email:** supan@cmkl.ac.th
- **LinkedIn:** [Supan Tungjitusolmun](#)

Assoc. Prof. Akkarit Sangpetch, Ph.D., Carnegie Mellon-KMITL Program Director, Chief Financial Officer
CMKL University, Bangkok, Thailand

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- **Phone:** (+66) 083 096 3916
- **LinkedIn:** [Akkarit Sangpetch](#)

Prof. Toshiaki Aoki, Ph.D., Professor
Japan Advanced Institute of Science and Technology, Ishikawa, Japan

- **Email:** toshiaki@jaist.ac.jp
- **Lab Website:** [Aoki Laboratory](#)

Assoc. Prof. Twittie Senivongse, Ph.D., Lecturer
Chulalongkorn University, Bangkok, Thailand

- **Email:** twittie.s@chula.ac.th
- **LinkedIn:** [Twittie Senivongse](#)

Statement of Declaration

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

Date: Thursday 29th May, 2025

Charnon Pattiyanon, Ph.D.