Assoc. Professor Dr. Kannikar Intawong

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Personal Data

E-Mail:	kannikar.i@cmu.ac.th
Nationality:	Thai
Languages:	Thai, French, English

Education

2011- 2017	PhD. Informatique (Computer Science) LIRIS (Laboratoire d'InfoRmatique en Image et Systèmes d'information), University Lumière Lyon2
2019-2021	Master of Public Health, Faculty of Publich Health, Chiang Mai University
2009-2010	Exchange Master's degree: Eramus Mundus ECW eLINK program between Chiang Mai University and the University Lumière Lyon2, France
2007- 2009	Master of Science Software Engineering, College of Arts, Media and Technology, Chiang Mai University
2003-2007	Bachelor of Information Technology (IT), Computer Department, Maejo University

Work Experiences

2018 - Present	Faculty of Public Health, Chiang Mai University **Position:** Lecturer
2015 - 2017	Institut de la communication (ICOM), University Lumière Lyon2 **Position:** Teacher Assistant
2008 - 2011	College of Arts, Media and Technology Chiang Mai University **Position:** Lecturer
2007 – 2008	Rajamangala University of Technology Lanna **Position:** Computer academician
2006 – 2007	Nomegic ltd., Bangkok, Thailand **Position:** Developer (UML tool.)

Expertise

Expertise: Artificial Intelligence (AI), Big data, image processing, Software engineering, Health Informatics

Publications

Journal:

- P. Ariya, S. Khanchai, **K. Intawong,** and K. Puritat, "Enhancing textile heritage engagement through generative AI-based virtual assistants in virtual reality museums," Computers & Education X Reality, vol. 7, p. 100112, Jul. 2025.

- P. Ariya, N. Wongwan, P. Worragin, **K. Intawong,** and K. Puritat, "Immersive realities in museums: evaluating the impact of VR, VR360, and MR on visitor presence, engagement and motivation," Virtual Reality, vol. 29, no. 3, Jul. 2025.

- **K. Intawong,** P. Worragin, S. Khanchai, and K. Puritat, "Transformative Metaverse Pedagogy for Intangible Heritage: a gamified platform for learning Lanna Dance in immersive Cultural education," Education Sciences, vol. 15, no. 6, p. 736, Jun. 2025.

- P. Khammawan, A. Thongprachum, **K. Intawong,** and S. Chariyalertsak, "Severity, mortality, long COVID-19, and quality of life: Insights from a cohort study of hospitalized COVID-19 patients during the delta variant predominance period in Thailand," PLoS ONE, vol. 20, no. 6, p. e0324061, Jun. 2025.

- Y. Tongpaeng, R. Nobnop, N. Wongwan, W. Arayaphan, **K. Intawong,** and K. Puritat, "Exploring Hand Gesture-Based Tangible Interactions in Mixed Reality for Ancient Fabric Exhibits: a Digital Humanities Approach to enhancing cultural heritage preservation and visitor engagement," Digital Applications in Archaeology and Cultural Heritage, p. e00414, Apr. 2025.

- P. Ariya, S. Khanchai, **K. Intawong,** and K. Puritat, "Designing and engaging students in library tours using mixed reality: a study on library anxiety, knowledge acquisition, and student engagement," Digital Library Perspectives, Mar. 2025.

- P. Ariya, N. Wongwan, **K. Intawong,** and K. Puritat, "Digital literacy through gaming: A comparative study of knowledge acquisition, social presence, and emotional reactions in digital and non-digital board games," Social Sciences & Humanities Open, vol. 11, p. 101387, Jan. 2025.

- P. Ariya, Y. Yensathit, P. Thongthip, **K. Intawong,** and K. Puritat, "Assisting hearing and physically impaired students in navigating immersive virtual reality for library orientation," Technologies, vol. 13, no. 1, p. 2, Dec. 2024.

- K. Jansukpum, S. Chernbumroong, **K. Intawong,** P. Sureephong, and K. Puritat, "Gamified Virtual Reality for Library services: The effect of gamification on enhancing knowledge retention and user engagement," New Review of Academic Librarianship, pp. 1–21, Jul. 2024.

- P. Thongthip, **K. Intawong,** S. Chernbumroong, P. Worragin, Y. Tongpaeng, and K. Puritat, "Design and analysis of personalized serious games for information literacy: catering to introverted and extraverted individuals through game elements," Humanities and Social Sciences Communications, vol. 11, no. 1, Jun. 2024.

- S. Yolthasart, **K. Intawong**, P. Thongthip, and K. Puritat, "The Game of Heritage: enhancing virtual museum visits through gamification for tourists," TEM Journal, pp. 3359–3372, Nov. 2024.

- P. Ariya**, K. Intawong**, P. Worragin, P. Thongthip, and K. Puritat, "Navigating Academic Horizons: The Role of Location-Based Games in Multidisciplinary University Transition," International Journal of Engineering Pedagogy (iJEP), vol. 14, no. 7, pp. 4–29, Oct. 2024.

- **K. Intawong,** P. Worragin, P. Homla, and K. Puritat, "Implementation of Immersive Virtual Reality Tours of Heritage for Intermediate Care with Life-Limiting Illnesses," International Journal of Engineering Trends and Technology, vol. 72, no. 9, pp. 173–183, Sep. 2024.

- P. Ariya, **K. Intawong**, P. Worragin, P. Thongthip, and K. Puritat, "Navigating Academic Horizons: The Role of Location-Based Games in Multidisciplinary University Transition," International Journal of Engineering Pedagogy (iJEP), vol. 14, no. 7, pp. 4–29, Oct. 2024.

- S. Yolthasart, **K. Intawong**, P. Thongthip, and K. Puritat, "The Game of Heritage: enhancing virtual museum visits through gamification for tourists," TEM Journal, pp. 3359–3372, Nov. 2024.

- P. Thongthip, **K. Intawong,** S. Chernbumroong, P. Worragin, Y. Tongpaeng, and K. Puritat, "Design and analysis of personalized serious games for information literacy: catering to introverted and extraverted individuals through game elements," Humanities and Social Sciences Communications, vol. 11, no. 1, Jun. 2024.

- S. Chernbumroong, P. Worragin, N. Wongwan, **K. Intawong**, P. Homla, and K. Puritat, "Digitization of myth: The HimmapanVR Project's role in cultural preservation," Heliyon. 2024.

- P. Sureephong, S. Chernbumroong, P. Ariya, **K. Intawong**, and K. Puritat, "The effect of a location-based game for university transition: Comparing learning outcomes and intrinsic motivation of students in different disciplines," Education and Information Technologies. 2024.

- S. Chernbumroong, P. Ariya, S. Yolthasart, N. Wongwan, **K. Intawong**, and K. Puritat, "Comparing the impact of non-gamified and gamified virtual reality in digital twin virtual museum environments: A case study of Wieng Yong House Museum, Thailand," Heritage. 2024.

- P. Sureephong, S. Chernbumroong, S. Niemsup, P. Homla, **K. Intawong**, and K. Puritat, "Exploring the impact of the Gamified Metaverse on knowledge acquisition and library anxiety in academic libraries," Information Technology and Libraries. 2024.

- Y. Tongpaeng, R. Nobnop, N. Wongwan, P. Homla, K. **Intawong**, and K. Puritat, "Comparison of gamified and non-gamified mixed reality in enhancing museum visitor engagement, motivation, and learning outcome," Journal of Heritage Tourism. 2024.

- P. Homla, P. Ariya, P. Worragin, S. Niemsup, K. Puritat, and **K. Intawong**, "Effectiveness of an E-learning system for emergency signs and CPR emergency preparedness in marathon events: A comparative study," International journal of online and biomedical engineering. 2024.

- **K. Intawong**, S. Chariyalertsak, K. Chalom, T. Wonghirundecha, W. Kowatcharakul, A. Thongprachum, N. Chotirosniramit, K. Noppakun, K. Khwanngern, W. Teacharak, P. Piamanant, P. Khammawan, S. Iamsirithaworng, "Heterologous booster vaccines reduce severity and mortality in COVID-19 during BA.2 and BA.4/BA.5 omicron predominance in Thailand," Journal of Microbiology, Immunology and Infection. 2023.

- P. Sureephong, S. Chernbumroong, **K. Intawong**, K. Jansukpum, N. Wongwan, and K. Puritat, "The effect of virtual reality on knowledge acquisition and situational interest regarding library orientation in the time of Covid-19," Journal of Academic Librarianship. 2023.

- C. Panyadee, S. Krajangchom, K. Sangkakorn, and **K. Intawong,** "Smart wellness technology for tourism destination based-on evolving tourist expectation model," TEM Journal. 2023.

- **K. Intawong,** S. Chariyalertsak, K. Chalom, T. Wonghirundecha, W. Kowatcharakul, A. Thongprachum, N. Chotirosniramit, K. Noppakun, K. Khwanngern, W. Teacharak, P. Piamanant, P. Chantaklang, P. Khammawan, "Waning vaccine response to severe COVID-19 outcomes during omicron predominance in Thailand," PLoS One. 2023.

- **K. Intawong,** S. Chariyalertsak, K. Chalom, T. Wonghirundecha, W. Kowatcharakul, A. Thongprachum, N. Chotirosniramit, W. Teacharak, K. Pimpinan J. Waneesorn, S. Iamsirithaworn, "Effectiveness of heterologous third and fourth dose COVID-19 vaccine schedules for SARS-CoV-2 infection during delta and omicron predominance in Thailand: a test-negative, case-control study," Lancet Reg. The Lancet Regional Health - Southeast Asia. 2023.

- B. Leenaraj, W. Arayaphan, **K. Intawong**, and K. Puritat, "A gamified mobile application for first-year student orientation to promote library services," Journal of Librarianship and Information Science. 2023.

- **K. Intawong,** S. Chariyalertsak, K. Chalom, T. Wonghirundecha, W. Kowatcharakul, P. Ayood, A. Thongprachum, N. Chotirosniramit, K. Noppakun, K. Khwanngern, W. Teacharak, P. Piamanant, P. Khammawan, "Role of booster vaccines and hybrid immunity against severe COVID-19 outcomes during BA.5 omicron predominance in Thailand," Human Vaccines and Immunotherapeutics. 2023.

- W. Boonchieng, A. Rayanakorn, **K. Intawong**, C. Chariyalertsak, P. Khemngern, S. Stonington, S. Chariyalertsak, "Development of a School-based Intervention Program for Waste Management in a Rural School in Northern Thailand," Open Public Health Journal. 2023.

- P. Sureephong, S. Chernbumroong, S. Sangamuang, O. Sirasakamol, **K. Intawong**, and K. Puritat, "Enhancing information literacy for spotting fake news: A study on the efficacy of a serious game for M-learning across different age groups," International Journal of Interactive Mobile Technologies. 2023.

- **K. Intawong,** S. Chariyalertsak, K. Chalom, T. Wonghirundecha, W. Kowatcharakul, P. Ayood, A. Thongprachum, N. Chotirosniramit, K. Noppakun, K. Khwanngern, W. Teacharak, P. Piamanant, P. Khammawan, "Reduction in severity and mortality in COVID-19 patients owing to heterologous third and fourth-dose vaccines during the periods of delta and omicron predominance in Thailand," International Journal of Infectious Diseases. 2023.

- S. Chautrakarn, A. Rayanakorn, **K. Intawong,** C. Chariyalertsak, P. Khemngern, S. Stonington, S. Chariyalertsak, "PrEP stigma among current and non-current PrEP users in Thailand: A comparison between hospital and key population-led health service settings," Frontiers in Public Health. 2022.

- W. Arayaphan, **K. Intawong,** and K. Puritat, "Digitalization of ancient fabric using virtual reality technology at the Wieng Yong House Museum: The FabricVR project," Digital Applications in Archaeology and Cultural Heritage. 2022.

- A. Rayanakorn, S. Chautrakarn**, K. Intawong,** C. Chariyalertsak, P. Khemngern, D. Olson, S. Chariyalertsak, "A comparison of attitudes and knowledge of pre-exposure prophylaxis (PrEP) between hospital and Key Population Led Health Service providers: Lessons for Thailand's Universal Health Coverage implementation," PLoS One. 2022.

- **K. Intawong,** D. Olson, and S. Chariyalertsak, "Application technology to fight the COVID-19 pandemic: Lessons learned in Thailand," Biochemical and biophysical research communications. 2021.

- P. Ariya**, K. Intawong,** and K. Puritat, "Integrating the webinar as a tool to support adult training: A case study on the training for entrepreneurs of SMEs in Thailand," International Journal of Emerging Technologies in Learning. 2021.

- **K. Intawong** and K. Puritat, "A framework of developing mobile gamification to improve user engagement of physical activity: A case study of location-based augmented reality mobile game for promoting physical health," International journal of online and biomedical engineering. 2021.

- **K. Intawong,** W. Boonchieng, P. Lerttrakarnnon, E. Boonchieng, and K. Puritat, "A-SA SOS: A mobile- and IoT-based pre-hospital emergency service for the elderly and village health volunteers," International Journal of Advanced Computer Science and Applications. 2021.

- K. Puritat, P. Julrode, P. Ariya, S. Sangamuang, and **K. Intawong**, "Book recommendation for library automation use in school libraries by multi features of support vector machine," International Journal of Advanced Computer Science and Applications. 2021.

- **K. Intawong,** D. Olson, and S. Chariyalertsak, "Application technology to fight the COVID-19 pandemic: Lessons learned in Thailand," Biochemical and Biophysical Research Communications. 2021.

- **K.Intawong,** "The new algorithm based on mechanic flow using in automatic zone detection for video surveillance". International Journal of Advances in Electronics and Computer Science (IJAECS). 2018

- **K.Intawong**, M.Scuturici, S.Miguet. "Automatic Traffic analysis in video sequences". International Journal of Advances in Computer Science & Its Applications. 2017

Conferences:

- P. Khammawan, A. Thongprachum, S. Chariyalertsak, and K. Intawong, "Monitoring system for hospitalized COVID-19 patients in tertiary care hospital, Chiang Mai," in 2024 Joint International Conference on Digital Arts, Media and Technology with ECTI Northern Section Conference on Electrical, Electronics, Computer and Telecommunications Engineering (ECTI DAMT & NCON), 2024.

- S. Khiawaiy, W. Boonchieng, and K. Intawong, "Mobile health applications for monitoring children's oral health at school," in 2024 Joint International Conference on Digital Arts, Media and Technology with ECTI Northern Section Conference on Electrical, Electronics, Computer and Telecommunications Engineering (ECTI DAMT & NCON), 2024.

- C. Panyadee, A. Kuntharose, A. Traisaeng, T. Tantra, W. Boonchieng, and K. Intawong, "Mobile assessment for the evaluation of media and alcohol consumption behaviors among communities in tourist districts," in 2024 Joint International Conference on Digital Arts, Media and Technology with ECTI Northern Section Conference on Electrical, Electronics, Computer and Telecommunications Engineering (ECTI DAMT & NCON), 2024.

- S. Khanchai, K. Intawong, W. Boonchieng, T. Wijitraphan, P. Traisattayakun, and K. Puritat, "Mobile application for triage medical system in emergency rooms: Enhancing accuracy and attitude - A

case study in hospitals of Chiang Mai province," in 2023 27th International Computer Science and Engineering Conference (ICSEC), 2023.

- K. Puritat, T. Atsawakornkan, and K. Intawong, "Using a screening risk of dyslexia game to evaluate students with learning disabilities through the use of language-independent content and machine learning," in 2023 Joint International Conference on Digital Arts, Media and Technology with ECTI Northern Section Conference on Electrical, Electronics, Computer and Telecommunications Engineering (ECTI DAMT & NCON), 2023.

- C. Panyadee, A. Kuntharose, K. Sangkakorn, and K. Intawong, "Data visualization platform and tourism resilience in the post COVID-19 pandemic in Chiang Mai, Thailand," in 2023 Joint International Conference on Digital Arts, Media and Technology with ECTI Northern Section Conference on Electrical, Electronics, Computer and Telecommunications Engineering (ECTI DAMT & NCON), 2023.

- K. Intawong, P. Ong-artborirak, and W. Boonchieng, "Seamless electronic medical record for health management system in emergency patients," in 2021 Joint International Conference on Digital Arts, Media and Technology with ECTI Northern Section Conference on Electrical, Electronics, Computer and Telecommunication Engineering, 2021.

- K. Intawong, P. Prompantakorn, and W. Boonchieng, "An improved automatic zone detection algorithm based on mechanic flow for complex scene event," in 2021 Joint International Conference on Digital Arts, Media and Technology with ECTI Northern Section Conference on Electrical, Electronics, Computer and Telecommunication Engineering, 2021.

- K. Puritat and K. Intawong, "Development of an open source automated library system with book recommedation system for small libraries," in 2020 Joint International Conference on Digital Arts, Media and Technology with ECTI Northern Section Conference on Electrical, Electronics, Computer and Telecommunications Engineering (ECTI DAMT & NCON), 2020.

- P. Ariya, K. Puritat, and K. Intawong, "Knowledge expert co-creation-based conceptual framework for educational game," in 2019 Joint International Conference on Digital Arts, Media and Technology with ECTI Northern Section Conference on Electrical, Electronics, Computer and Telecommunications Engineering (ECTI DAMT-NCON), 2019.

- K. Intawong, K. Puritat, and P. Jarusawat, "Short Term prediction of statistics for Bigdata in video surveillance," in 2018 22nd International Computer Science and Engineering Conference (ICSEC), 2018.

- K. Intawong, M. Scuturici, and S. Miguet, "Detection of entry and exit zones in image sequences for automatic traffic analysis," in 2015 12th IEEE International Conference on Advanced Video and Signal Based Surveillance (AVSS), 2015.

- K.Intawong, M.Scuturici, S.Miguet. "Automatic traffic analysis in video sequences". The 3rd International Conference On Advances in Computing, Control, and Network (ACCN), Bangkok-Thailand. 2015.

- K.Intawong, M.Scuturici, S.Miguet. "A new pixel-based quality measure for segmentation algorithms integrating precision, recall and specificity". International Conference on Computer Analysis of Images and Patterns (CAIP), York - UK. 2013.

Keynote speaker/ invite lecturer

- K.Intawong "How applications prevent and control COVID-19 pandemic". Global health class in Department of Public Health Sciences, University of California Davis, USA. January, 2021.

- K.Intawong "Innovative platforms for fighting COVID-19 pandemic : lesson learned from Thailand ". Asia-Pacific University-Engagement Network (APUCEN), University for Society International Conference (U4SIC), Malaysia. November, 2020.

- K.Intawong "Creating a multi-level data center system for fighting COVID-19 pandemic : lesson learned from Thailand". the 4th International Academic Forum of LSI, GXMU. October, 2020.

Oral presentations / seminars:

- K.Intawong "Big data analysis for Chiang Mai community problems by using Crowd sourcing platform". International Conference on One Medicine One Sciences (ICOMOS), Chiang Mai- Thailand. 2019.

- K.Intawong "Road safety and Traffic calming". Ma thèse en 180 secondes, Lyon- France. 2014.

- K.Intawong, M.Scuturici, S.Miguet. "Détection des zones d'entrée et de sortie dans des séquences d'images pour l'analyse automatique de la circulation". Suivi multi-objets dans les séquences vidéo complexes (GdR- isis), Paris- France. 2015.

Chair:

- Session chairs in The 3rd International Symposium on emerging technologies for education (SETE), Chiang Mai-Thailand. 2018.

Researches

1. **(2024)** **Digital platform for managing a dialysis center by applying automated robotic processes with image processing technology**
   Funding National Research Council of Thailand (NRCT)
   Responsibility Project Leader
   Description to develop platform for managing a dialysis center

2. **(2023) The evaluation of the campaign to refrain from drinking during Buddhist Lent at the community level, Chiang Mai**
   Funding ThaiHealth Promotion Foundation
   Responsibility Project Leader
   Description to evaluated of the campaign to refrain from drinking during Buddhist Lent in area based at Sanpong District, Chiangmai

3. **(2022) Development of Intermediate Care System using Virtual Reality Technology to Improve Symptoms of Patients After Rehabilitation**
   Funding Chiang Mai university (New Researcher)
   Responsibility Project Leader
   Description to develop a virtual reality system and simulate different scenarios at each location to help Patients After Rehabilitation (IMC)

4. **(2022) Development of Provincial Health Information system management for improving Emergency Care System (Phase3)**
   Funding National Research Council of Thailand (NRCT)
   Responsibility Project Leader
   Description To analysis and synchronize data with a central database (Integral Health Information Managements: IHIMs) and provide eco-system in healthcare.

5. **(2021) The development system of virtual reality for develop social interaction skill and nonverbal communication for children learning disability in autism spectrum disorder**
   Funding National Innovation Agency (Public Organization)
   Responsibility Project Leader
   Description to develop a virtual reality system and simulate different scenarios at each location to help practice and develop social skills for children with social and emotional disabilities

6. **(2021) Raise awareness through digital animationand game for screening risk of students with learning disabilities**
   funding Thai Media Fund
   Responsibility Project Leader
   Description To create animations and games for students to assess their risk of developing learning disabilities.

7. **(2021)** **Development of a support system for information management of COVID-19 in Chiang Mai Province**

   Funding National Research Council of Thailand (NRCT)

   Responsibility Project Leader

   Description To analysis and synchronize data with a central database API (the provincial HIS database and the Chiang Mai central database: CMHIS)

8. **(2020)** **HIV pre-exposure prophylaxis monitoring and process evaluation for Thailand's National PrEP roll-out under the Universal Health Coverage (UHC) for fiscal year 2020**

   Funding The Joint United Nations Programme on HIV/AIDS; UNAIDS and The Global Fund to Fight AIDs, Tuberculosis and Malaria

   Responsibility Researcher

   Description To evaluate data and implement Thailand's cascade dashboard system

9. **(2020)** **Development of Intelligent Data Management Systems For Running / Cycling In Seamless Emergency Referral**

   Funding Chiang Mai university (New Researcher)

   Responsibility Project Leader

   Description To analyze data and create an intelligent database system for running/cycling in order to facilitate fast emergency referrals for first aid help to runners experiencing medical problems during races.

10. **(2020)** Innovative e-marketplace with applied artificial intelligence and data analytic

    Funding National Research Council of Thailand (NRCT)

    Responsibility Project Leader

    Description To develop a unique Thai SME system for e-commerce and overseas shipping

11. **(2019)** **Development of a support system for information management of COVID-19 in Chiang Mai Province**

    Funding National Research Council of Thailand (NRCT)

    Responsibility Project Leader

    Description To evaluate situational analysis and design technologies for the construction of a surveillance system for communicable disease health concerns (COVID-19).

12. **(2019)** **Development of completely on integration system emergency care service in medical and public health (Spearhead)**

    Funding National Research Council of Thailand (NRCT)

    Responsibility Project Leader (Mini project)

> **Description** To collect problems, analyze gaps, and assess the state of the service system and provides comprehensive medical and public health emergency care.

13. **(2019) Analysis of the system, development of a processing model, and design of the information presentation in the national information system for HIV/AIDS patients. (National AIDS Program : NAP+)**

    Funding Bureau of AIDS, TB, STIs, Department of Disease Control, ministry of public health.

    Responsibility Researcher

    Description To develop a model of indication processing and a dashboard for HIV services. NAP+ is the abbreviation for the National AIDS Program.