Final Program

33rd IEEE/ACIS International Winter Conference on Software Engineering, Artificial Intelligence, Networking and Parallel/Distributed Computing (SNPD2025-Winter)

Machine Tool Building, National Chin-Yi University of Technology
Taichung, Taiwan
December 3, 2025

Sponsored by IEEE Computer Society
& International Association for Computer & Information Science (ACIS)

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Program at a Glance

Wednesday, June 25, 2025

Time	Activity	Location
08:30~17:30	Registration	Corridor
9:00 – 9:20	Opening Ceremony	Machine Tool Building 1F VA102 Room
9:20 – 10:10	Keynote	Machine Tool Building 1F VA102 Room
10:10 – 10:30	Coffee Break	Corridor
10:30 – 12:00	Session 1-A	Machine Tool Building 1F VA102 Room
	Session 2-A	Machine Tool Building 4F VA405 Room
12:00 – 13:30	Lunch	Machine Tool Building 1F VA102 Room
13:30 – 15:00	Session 1-B	Machine Tool Building 1F VA102 Room
	Session 2-B	Machine Tool Building 4F VA405 Room
15:10 – 15:30	Coffee Break	Corridor
15:30 – 17:30	Session 1-C	Machine Tool Building 1F VA102 Room
	Session 1-D	Machine Tool Building 4F VA405 Room

Location Information	
VA102 Room	Machine Tool Building 1st Floor
VA405 Room	Machine Tool Building 4th Floor

Keynote

AIoT-Driven Smart Aquaculture: Technologies, Applications, and the Road Toward Resilient Marine Farming

Liang-Bi Chen, Ph.D.
Associate Professor, National Penghu University of Science and Technology
Penghu, Taiwan
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Abstract

Climate change and increasingly unpredictable marine environments are reshaping the future of traditional cage aquaculture. To address these challenges, the integration of Artificial Intelligence and the Internet of Things (AIoT) is rapidly transforming aquaculture into a highly automated, data-driven, and resilient production system. This keynote will explore the core technologies enabling smart aquaculture—including adaptive water-quality sensing, fish behavior analytics, intelligent feeding mechanisms, and edge-AI computing frameworks. By combining real-time sensing with AI-powered decision models, aquaculture operators can achieve predictive maintenance, precision feeding control, operational efficiency, and sustainable resource utilization. Practical deployments such as the Penghu Smart Aquaculture Demonstration Project and the AIoT Box ecosystem will be shared to highlight how AIoT can accelerate digital transformation and unlock scalable, energy-efficient, and commercially viable smart farming architectures. Finally, the talk will examine emerging challenges—including data governance, model robustness, cybersecurity, and industrial adoption—and propose a forward-looking roadmap toward building resilient next-generation marine farming systems.

Bio

Dr. Liang-Bi Chen is an Associate Professor and Chair of the Department of Computer Science and Information Engineering at the National Penghu University of Science and Technology (NPU), Taiwan. He received his B.S. and M.S. degrees in Electronic Engineering from the National Kaohsiung University of Applied Sciences in 2001 and 2003, and earned his Ph.D. in Electronic Engineering from Southern Taiwan University of Science and Technology in 2019. Dr. Chen has held research positions at internationally recognized institutions, including the National University of Singapore, the University of California, Irvine (USA), and Waseda University (Japan). His industry experience includes engineering and executive roles at BXB Electronics Co., Ltd., where he contributed to R&D strategy and technology leadership. His research focuses on Internet of Things (IoT), Artificial Intelligence of Things (AIoT), low-power embedded system design, VLSI design, digital audio signal processing, system-level exploration, and engineering education. He has actively contributed to the IEEE community as an Associate Editor of IEEE Access, Section Editor Leader and Guest Editor-in-Chief for IEEE Technology and Engineering Education, and committee member of several international journals and conferences. Since 2022, he has served as Chair of the IoT Technical Committee within the IEEE Consumer Technology Society. Dr. Chen is a senior member of IEEE and a member of IEICE and PMI. His work has been recognized internationally, receiving awards including the 2021 IEEE Chester Sall Award (Best Paper Award – IEEE Transactions on Consumer Electronics), the 2018 Publons Top 1% Reviewer Award, the IEEE Education Society Student Leadership Award, and several best paper and demo awards across IEEE conferences.

Program in Detail

Wednesday, December 3, 2025

7:00am-5:30am – Registration **Corridor**

9:00am-9:20am – Opening Ceremony **VA102 Room**

9:20-10:10am – Keynote from ACIS **VA102 Room**
Chair: *HangHong Kuo (National Chin-Yi University of Technology, Taiwan)*

10:10am-10:30am – Coffee Break **Corridor**

10:30am-12:00pm – Session-1A(SNPD2025-Winter) **VA102 Room**
Chair: *Aaron Raymond See (National Chin-Yi University of Technology, Taiwan)*
Simulating the Force Exerted by a Pneumatic Artificial Muscle using a Thin Film Force Sensor
Christian Rey Alison, Loryliza Bulay-Og and Aaron Raymond See

Game-Theoretic Algorithms for Robust Pattern Recognition in Nonlinear Dynamic Systems
Mohamed Ayari, Atef Gharbi and Nasser Albalawi

Federated Deep Reinforcement Learning for Privacy-Preserving and Robust Pattern Recognition
Mohamed Ayari, Zeineb Klai and Nizal Alshammari

A Comprehensive Review of AI-Based Traffic Prediction Techniques
Faten Fakhfakh and Mohamed Mosbah

An Industrial Steel Pipe Inner and Outer Diameter Measurement System Based on Deep Learning Technology
Jia-Yu Su, Zhen-Qi Lin, Chi-Hsun Chen and Yung-Ming Kuo

Rationality of Policy-Based Profit Sharing in Deep Reinforcement Learning
Naoki Kodama, Taku Harada and Kazuteru Miyazaki

10:30am-12:00pm – Session-2A(SNPD2025-SummerIII) **VA405 Room**
Chair: *Hsiung-Cheng Lin (National Chin-Yi University of Technology, Taiwan)*
Evaluation Communicative Health Literacy Textual Coherence Unlabeled Texts Sentence Segmentation MetaClustering
Mehdoui Mouheb

Cardiovascular Abnormality Classification Using a Hybrid Quantum Neural Network
Melvin Ramkhelawan, Srimannarayana Grandhi and Santoso Wibowo

S-RAG: Enhancing RAG with Structured Summarization and Semantic Clustering
Hangu Zhang, Xinyue Zhan, Yuhui Jiang, Chao Xing and Wang Li

A Real-Time Sign Language Recognition System Using Convolutional Neural Networks and Computer Vision
Souha Ben Hamouda, Wafa Gabsi and Bechir Zalila

Natural Language Dialogue and Knowledge based Intelligent Resource Recommendation Architecture and Mechanisms
Yu Li, Zhoucan He and Zhongqiu Zhang

Research on Automated Verification Methods for Smart Grid Security Protocols Based on Formal Models
Zhoucan He, Yilong Zheng, Shuyuan Liu, Sisi Chen, Zhongze Du and Kailong Zhang

12:10pm-13:30pm – Lunch **VA405 Room**

13:30pm-15:00pm – Session-1B(SNPD2025-Winter) **VA102 Room**

Chair: *HangHong Kuo (National Chin-Yi University of Technology, Taiwan)*

A Method for Reducing Loneliness in Older Adults Through Empathetic Responses Based on Conversational History
Akinori Matsukawa, Nahyun Kim, Sinan Chen, Keiko Katagiri, Masahide Nakamura and Takuya Nakata

Personalized Emotion Analysis using In-Context Learning
Shuto Kakegawa, Koichi Yamada and Hidetaka Masuda

A Hierarchical Power Model for HPC Systems with Validation Against TOP500 and Green500 Benchmarks
Markus Duschl and Antoine Bossard

Proposal for a Cognitive Self-Assessment Support Service for the Elderly Using Meal Records
Yousuke Oshima, Takuya Nakata, Sinan Chen, Sachio Saiki, Kosuke Masuda, Yuuta Tsuyuzaki, Kiyoshi Yasuda and Masahide Nakamura

Benchmarking Open-Source Large Language Models: A Comparative Performance Study
Seonghyeon Kim, Jongyeop Kim, Lei Chen and Atef Shalan

Proposal of Online Circle Services for Resolving Loneliness and Isolation of older adults – Utilization of Virtual Agent
Atsuro Saika, Nahyun Kim, Takuya Nakata, Sinan Chen, Keiko Katagiri and Masahide Nakamura

13:30pm-15:00pm – Session-2B(SNPD2025-SummerIII) **VA405 Room**

Chair: *Hsiung-Cheng Lin (National Chin-Yi University of Technology, Taiwan)*

3D MRI Optimal Modality Combination for Brain Tumour Segmentation Using Transfer Learning
Ekram Chamseddine, Lotfi Tlig and Mounir Sayadi

Enchancing Forestry Data Using Transformers for Downstream Machine Learning Tasks
James Gu, Bernice Golomo, Hlaing Thinn Phyu, Qiurui Wu, Jiaxin Chen and Rashid Hussain Khokhar

Evaluating Attention-Enhanced CNNs for Image Classification with Grad-CAM Visualization
Lien Tran, Boyuan Zhang, Lian Chen, Lin Zhao, Huiting Qin and Rashid Hussain Khokhar

Intelligent Detection and Classification of Vehicle Damage via YOLOv13
Tirth Sidhpura, Ashutosh Marathe, Hirak Patel, Rupinder Kaur, Yamini Patel, Muhammad Azam and Rashid Hussain Khokhar

Optimising Attack Path using Searching Algorithms
Wen Zeng, Jiajun Li and Francisco J. Aparicio-Navarro

Lightweight Convolutional Neural Network for Multi-Class Classification of Retinal Fundus Images
Baburam Adhikari, Sagar Phuyal, Ujjwal Uprety, Khalil Al Hussaeni and Rashid Hussain Khokhar

15:00pm-15:20pm – Coffee Break **Corridor**

15:20pm-17:00pm – Session-1C(SNPD2025-Winter) **VA102 Room**

Chair: *Cheng-Yu Peng (National Chin-Yi University of Technology, Taiwan)*

An Algorithm for Detecting Guillotine Cut Patterns Using Sequence-Pairs
Toshiyuki Nakamura and Naoshi Sakamoto

From Clusters to Classes: An Integrated Unsupervised and Supervised Deep Learning Approach for Explainable Chest X-ray Analysis
Lord Coffie and Jongyeop Kim

Explainable Machine Learning for Autism Screening Across Developmental Stages
Lord Coffie, Jongyeop Kim and Lei Chen

DeepAttend: A CNN-based Attention Monitoring System for Online Learning Environments
Parth Sathiya, Ayaz Marediya, Divy Goswami, Kartik Prajapati, Krishkumar Patel and Rashid Hussain Khokhar

Adversarially Robust Early Detection of Misinformation From Text Features using Traditional and Deep Learning Methodologies
James Gu, Muhammad Azam and Rashid Hussain Khokhar

Interpretable Deep Learning for Automated MRI-Based Brain Tumor Diagnosis Using MobileNet and DenseNet
Ratchanon Pawanja, Janelle Carpena, Rachelle Chan, Ho Toan Pham, Khalil Al-Hussaeni and Rashid Hussain Khokhar

15:20pm-17:00pm – Session-1D(SNPD2025-Winter) VA405 Room

Chair: *Hsiung-Cheng Lin (National Chin-Yi University of Technology, Taiwan)*

Machine Learning Plays the Role of Classical Mechanics
Huber Nieto Chaupis

String Theory's Algebra Embeeded in Artificial Neural Networks
Huber Nieto-Chaupis

Machine Learning as a Tool to Teach Quantum Mechanics
Huber Nieto-Chaupis

Biolelectricty in Physics Courses of Engineering Programs
Huber Nieto-Chaupis

Derivation of Friis Transmission Equation from Fourier Transform of Green Function
Huber Nieto-Chaupis

Mathematical Methodologies for Teaching Principles and Functionality of Quantum Computer in Physics-based Courses
Huber Nieto-Chaupis

Channel-Level and Multi-Feature Perturbations for Black-Box Adversarial Attacks
Yue Ping, Yuefeng Wang and Wenqian Shang