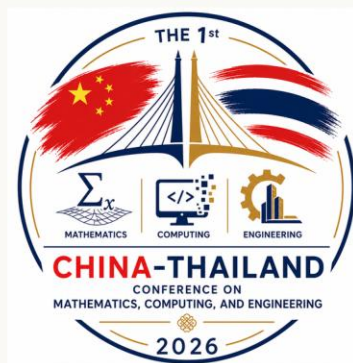




CONFERENCE PROCEEDING

the China–Thailand Conference on Mathematics, Computing, and Engineering (CTMCE 2026)



SEPTEMBER 19–21, 2026

Changzhou Institute of Technology (CIT)

Changzhou, Jiangsu Province, China

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Conference Schedule

Changzhou Institute of Technology (CIT) | Changzhou, Jiangsu Province, China

September 19, 2026

TIME	PRESENTER / SESSION
13:00–16:00	Participant registration
18:00–20:00	Welcome reception

September 20, 2026

TIME	PRESENTER / SESSION	PRESENTATION TOPIC
09:00–09:20	Opening remarks	Welcome and introduction to the meeting theme, schedule, and purpose
09:20–09:40	Jessada Tanthanuch	Application of the Gumbel Distribution for Medical Ultrasound Image Enhancement
09:40–10:00	Ye Hong	The Space Between Dialects: Dialect Continua, Human Variation and Artificial Intelligence
10:00–10:20	Akanat Wetayawanich	Mathematical Modeling for Comparing the Values of Non-Participating and Participating Insurance Policies
10:20–10:30	Morning break	
10:30–10:50	Liao Bangdong	One Shot, One Sort: The AI That Knows What Your Camera Caught
10:50–11:10	Kanyanat Noimano	Forecasting of Short-Term Metro Ridership with Support Vector Machine Online Model Optimized by Walrus Optimization and Adaptive-Weighted SVMCOL
11:10–11:30	Liu Yuxiang	Yutrack: Design and Implementation of a Running Motion Analysis System Based on Ordinary Smartphone Videos
11:30–13:30	Lunch and informal exchange	
13:30–13:50	Ackkharawin Weera	Application of Fractal Geometry and Poiseuille's Law for Modeling Renal Vascular Networks
13:50–14:10	Xu Guangyun	A Safeguarded Adaptive Hybrid Conjugate Gradient Method via Regularized Weight Optimization for Unconstrained Optimization
14:10–14:30	Sarut Jarukunthanadon	A Study of Sequences Generating All Almost-Isosceles Pythagorean Triples
14:30–14:40	Afternoon break	
14:40–15:00	Wang Lingyule	Fangyuan Zhiyin: A Multi-Agent Collaborative and Acoustic Knowledge Graph-Based Adaptive Dialect Learning System
15:00–15:20	Chayanin Saengsai	Comparison Study of Strategies in Spanish 21
15:20–15:40	Chen Xingyu	Artificial Intelligence and the Future of Electrical Engineering: Transforming Engineering Design, Automation, and Problem Solving
15:40–16:00	Jureerat Janpen	Predicting Undergraduate Student Dropout in Portugal Using a Hybrid Logistic Regression and Naïve Bayes Model
16:00–16:20	Fan Roujing	Learning Engineering in the AI Age: Lessons from a CDIO Robot Project
16:20–16:40	Tantiwut Tanwuttibandit	Optimization of Plant-Based Meat Formulations Using Space-Filling Mixture Design and Multi-Objective Desirability Function
16:40–17:00	Interactive discussion and closing summary	Open Q&A, review of the exchange, and discussion of future academic cooperation

September 21, 2026

TIME	PRESENTER / SESSION
09:00–12:00	Poster presentations
12:00–13:00	Lunch break
13:00–15:00	Poster presentations
15:00–16:00	Closing ceremony

The schedule is based on the supplied meeting agenda and may be adjusted to actual arrangements.

Mathematical Modeling for Comparing the Values of Non-Participating and Participating Insurance Policies

Wuttinun Jirasiripipat, Akanat Wetayawanich, Tidarut Areerak, and Jessada Tanthanuch

Institute of Science, Suranaree University of Technology, Thailand

ABSTRACT

This research develops and examines mathematical models for comparing the profitability of participating and non-participating insurance policies. The expected profit is formulated as a function of the insurance premium while accounting for key factors in insurance operations, including interest rates, claim benefits, dividends, claim probabilities, policy-lapse or premium-discontinuation probabilities, and consumer demand. Demand is modeled using willingness-to-pay (WTP) functions to represent consumers' insurance-purchasing decisions. Five forms of WTP functions are considered: baseline, exponential, logistic, normal-based, and Weibull. A business cost function that depends on both the insurance premium and consumer demand is also incorporated to provide a more realistic representation of insurers' operating costs. Calculus-based optimization techniques are employed to determine the premium levels that maximize the total expected profits of both policy types. In addition, graphical analyses under various parameter settings are conducted to examine the behavior and sensitivity of the proposed models. The results indicate that non-participating policies generally generate higher expected profits than participating policies across a broad range of scenarios. The choice of WTP function also substantially influences both the optimal premium and the corresponding maximum expected profit. Because different WTP functions capture distinct patterns of consumer purchasing behavior, they produce different optimal premium structures across target markets. These findings provide a mathematical framework for determining appropriate insurance premiums while simultaneously accounting for consumer behavior and operational factors. The proposed framework can support insurance product development, pricing strategy formulation, and business planning, thereby helping insurers improve profitability and promote long-term financial sustainability.



Committees

NAME	AFFILIATION
Prof. Zhang Bin	President of Changzhou Institute of Technology
Prof. Cang Yuquan	Vice President of Changzhou Institute of Technology
Prof. Li Xiongwei	Vice President of Changzhou Institute of Technology
Prof. Jin Xianghong	Vice President of Changzhou Institute of Technology
Prof. Zhang Hong	Changzhou Institute of Technology
Prof. Hu Zhixi	Changzhou Institute of Technology
Prof. Xi Ji	Changzhou Institute of Technology
Prof. Ye Hong	Changzhou Institute of Technology
Prof. Jin Zhongkun	Changzhou Institute of Technology
Prof. Xiao Xianjian	Changzhou Institute of Technology
Su Chaochao	Changzhou Institute of Technology
Asst. Prof. Jessada Tanthanuch	Suranaree University of Technology
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