

ICFEM 2025 Program (Hangzhou, GMT+8)

Day 0 - November 10, 2025

8:30 - 17:30

Registration

9:00 - 12:00

**Tutorial: Analysis (Model Checking) Techniques for Markov Decision Processes (MDPs)**

**Speaker: Prof. P. S. Thiagarajan**

Day 1 - November 11, 2025

8:30 - 9:00

Registration & Opening Remark

9:00 - 10:00

**Opening Keynote 1 by Prof. Jifeng He**

10:00 - 10:30

Coffee Break

**Session 1: Formal Verification of Security and Cryptographic Protocols**

10:30 - 12:30

**[3]** *Formal Verification of Physical Layer Security Protocols for Next-Generation Communication Networks*

Kangfeng Ye, Roberto Metere, Jim Woodcock and Poonam Yadav

**[28]** *Formal Construction of Threat Detections from Attack Trees*

Dumitru Bogdan Prelipcean, Catalin Dima and Daniele Varacca

**[37]** *ZK-ProVer: Proving Programming Verification in Non-Interactive Zero-Knowledge Proofs*

Haoyu Wei, Jingyu Ke, Ruibang Liu and Guoqiang Li

**[45]** *Formal Modeling and Verification of Blockchain Consensus Protocols: A Case Study on ChainMaker*

Minfan Xu, Shuo Zhou, Xian Xu and Huan Long

12:30 - 14:00

Lunch Break

14:00 - 15:00

**Keynote 2 by Prof. Jim Woodcock**

15:00 - 15:30

Coffee Break

**Session 2: LLMs and Formal Methods**

15:30 - 17:30

**[4]** *Automata-Based Steering Method for Diverse Structured Generation of Large Language Models*

Xiaokun Luan, Zeming Wei, Yihao Zhang and Meng Sun

**[8]** *LLM-SYM: Integrating Symbolic Methods and Large Language Models for Automated Theorem Proving*

Yifan Wu, Yanhong Huang and Jianqi Shi

**[11]** *Formalizing Requirements into Dafny Specifications with LLMs*

Yi-Han Lu, Xue-Yang Zhu, Wenhui Zhang and Rongjie Yan

**[36]** *A Test-Driven Approach for Refining Use Case Descriptions of Software Requirements with LLMs*

Haibo Li, Lixiao Zheng and Qihang Cai

<b>Day 2 - November 12, 2025</b>	
<b>9:00 - 10:00</b>	<b>Keynote 3 by Mariëlle Stoelinga</b>
<b>10:00 - 10:30</b>	Coffee Break
<b>Session 3: Runtime Verification, Control, and Robotics</b>	
<b>10:30 - 12:00</b>	<b>[10]</b> <i>Neural-Symbolic System Control Adjustment Based on Runtime Verification</i> Hongxu Zhu, Wanwei Liu and Ji Wang
	<b>[9]</b> <i>Modeling and Analysis of Cyber-Physical Systems in the Hybrid <math>\pi</math>-Calculus Using Extended Sequence Diagrams</i> Xiong Xu, Jixiang Miao, Shuling Wang and Jean-Pierre Talpin
	<b>[65]</b> <i>Formal Modelling of Fault Tolerant Robotic Missions</i> Manon Lecart and Elena Troubitsyna
	Lunch Break
<b>Session 4: Program Analysis and Software Reliability</b>	
<b>13:30 - 15:30</b>	<b>[18]</b> <i>Detecting Vector Container Errors in C++ Programs via Abstract Interpretation</i> Liu Siyu, Chen Liqian, Fan Guangsheng, Yin Banghu, Huang Chun and Wang Ji
	<b>[41]</b> <i>Synthesizing Loops from Linear Ranking Functions</i> Rui-Juan Jing, Yaru Yuan, Yuxing Cai, Yi Li and Changbo Chen
	<b>[25]</b> <i>MetaLogic: Robustness Evaluation of Text-to-Image Models Using Logically Equivalent Prompts</i> Yifan Shen, Yangyang Shu, Hye-young Paik and Yulei Sui
	<b>[48]</b> <i>Model-based test case generation from UML sequence diagrams using extended finite state machines</i> Maurício Rocha, Adenilson Simao and Thiago Souza
<b>15:30 - 16:00</b>	Coffee Break
<b>Session 5: SMT and Quantitative Verification</b>	
<b>16:00 - 17:50</b>	<b>[60]</b> <i>Avoiding Larger Conflict Regions in CDCL-Style Methods for Solving SMT-NRA</i> Xinpeng Ni, Tianyi Ding and Bican Xia
	<b>[61]</b> <i>Formal Modeling of Reinforcement Learning Systems with SMT</i> Tianyi Ding, Yuxin Lin and Meng Sun
	<b>[64]</b> <i>Towards High-Level SMT Program Modeling: Bounded Integers, Simplified Structs, and Metaprogramming</i> Xiangyu Li
	<b>[56]</b> <i>Quantitative Verification for Temporal Properties of Massive Linear Systems</i> Qing Liu, Yuntao Li, Sung Woo Choi, Luan Viet Nguyen and Hoang-Dung Tran
<b>18:30 - 20:30</b>	<b>Conference Banquet &amp; Award Ceremony(Location: Jinxi Hotel)</b>

Day 3 - November 13, 2025	
9:00 - 10:00	Keynote 4 by Yongwang Zhao
10:00 - 10:30	Coffee Break
Session 6: Logic, Automata, and Concurrent Systems	
10:30 - 12:30	[22] <i>BCCIC3: Batch Clause Construction Enhanced Generalization in IC3</i> Yi Chen, Liangze Yin, Xinyi Gong, Ji Wang and Ting Wang
	[42] <i>Modeling and Verifying Concurrent Reactive Systems Using Separation Logic</i> Huan Sun, David Sanán, Jun Sun and Wenhai Wang
	[54] <i>A Unified Method to Efficiently Verify Opacity of Discrete-Timed Automata</i> Julian Klein, Kuize Zhang and Sabine Glesner
	[67] <i>Specification and Verification of Multi-Clock Systems Using a Temporal Logic with Clock Constraints</i> Yuanrui Zhang, Frederic Mallet, Min Zhang and Zhiming Liu
12:30 - 14:00	Lunch Break
14:00 -15:30	West Lake Hiking Tour
End	

	Keynotes
	Regular Papers
	Doctoral Symposium Papers