38th International Conference on Computer Applications in Industry and Engineering (CAINE 2025)

PROGRAM

October 20–21, 2025

**Holiday Inn Downtown Superdome,
New Orleans, Louisiana, USA**

Sponsored by

International Society for
Computers and Their Applications

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Winona, MN 55987
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38th International Conference on Computer
Applications in Industry and Engineering
(CAINE 2025)

SPONSOR

International Society for Computers and Their Applications (ISCA)

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Dr. Krishna K Kambhampaty, Pennsylvania State University, USA
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Program at a Glance (All times in CDT)

Monday **10/20**	7:30 am - 8:30 am	**Registration and Breakfast (Coffee and Pastry)**
	8:30 am – 9:00 am	**Opening of CAINE and SEDE by Chairs**
	9:00 am –10:00 am	**SEDE and CAINE Keynote I: Prof. Chaoyang Zhang**
	10:00 am – 10:30 am	Coffee Break
	10:30 am -12:00 pm	**Session 1: Cybersecurity Frontiers & Resilient IoT** Paper ID: 14 Paper ID: 18 Paper ID: 29 Paper ID: 48 Paper ID: 15
	12:00 pm – 1:30 pm SEDE and CAINE Conference Luncheon and Awards	
	1:30 pm – 3:00 pm	**Session 2: Intelligent Signals & Smart Learning Systems** Paper ID: 43 Paper ID: 10 Paper ID: 05 Paper ID: 07 Paper ID: 22
	3:00 pm – 3:30 pm	Coffee Break
	3:30 pm – 5:00 pm	**Session 3: AI Horizons I — Models, Methods & Applications** Paper ID: 08 Paper ID: 42 Paper ID: 09 Paper ID: 17

Tuesday 10/21	8:00 am – 8:45 am	**Registration and Breakfast (Coffee and Pastry)**
	9:00 am – 10:00 am	**SEDE and CAINE Keynote II: Mr. Nat Prakongpan**
	10:00 am – 10:30 am	Coffee Break
	10:30 am –12:00 pm	**Session 4: Cloud Futures, Blockchain Trust & P2P Innovation** Paper ID: 25 Paper ID: 27 Paper ID: 28 Paper ID:03 Paper ID: 21
	12:00 pm – 1:00 pm Lunch (on your own)	
	1:00 pm – 2:30 pm	**Session 5: AI Horizons II — Models, Methods & Applications** Paper ID: 31 Paper ID:38 Paper ID:13 Paper ID: 41 Paper ID: 24

7:30 a.m. – 8:30 a.m.   REGISTRATION and BREAKFAST

(Coffee, Tea, Pastries)

Location: Colman Ballroom Lobby, Floor 8

8:30 a.m. – 9:00 a.m.   WELCOME, Opening of CAINE and SEDE by Chairs

Location: Colman Ballroom A, Floor 8

9:00 a.m. 10:00 a.m. KEYNOTE SPEAKER I

Professor Chaoyang Zhang, Ph.D.

University of Southern Mississippi School of Computing Sciences and Computer Engineering Professor, Graduate Program Coordinator, Former School Director

From Data to Discovery: AI-Driven Research in Health Informatics

Abstract: Health informatics lies at the intersection of data, computation, and discovery. With the rapid growth of biomedical big data, traditional analytic approaches are no longer sufficient. This keynote will explore how advances in data engineering, machine learning and artificial intelligence are transforming health informatics into a data-driven science of discovery.

Location: Colman Ballroom A, Floor 8

10:00 a.m. – 10:30 a.m. COFFEE BREAK (Location: Colman Ballroom Lobby, Floor 8)

| **SESSION 1** | **Cybersecurity Frontiers & Resilient IoT**
Monday, October 20, 10:30 a.m. – 12:00 p.m.
Session Chair: Dr. Indranil Roy
Room: Colman Ballroom B, Floor 8 |

1. **Cyber Defense by Access Control Hardening: Dynamic Web-Security Based on User Access Behavior**
   Chowdhury, M., Wohlbach, C. (*East Stroudsburg University of Pennsylvania, USA*)

2. **Traffic Congestion Sybil Attack Detection in VANET**
   Jaekel, A., Khanduja, S. (University of Windsor, Canada)

3. **STRIKE: A Structured Taxonomy of Cybercrime for Risk, Impact, Knowledge, and Evolution**
   Pappy, M., Nguyen, L., Kumar, S., Jung, B., Chen, B. (Troy University, USA)

4. **Securing E-Commerce: A Framework for Risk Management and Compliance**
   Derek, T. , Mehdi, B. , Nick, R. (University of Southern Mississippi, USA)

5. **LiveTest: An Open-Source OMR Testing Software**
   Stringfellow, C., Mathers, G., and Griffin, T. (Midwestern State University, Wichita Falls, TX)

12:00 P.M. – 1:30 P.M. Conference Luncheon And Best Paper Awards
Location: Room: Jazz Room, Floor 1

SESSION 2

Intelligent Signals & Smart Learning Systems
Monday, October 20, 1:30 p.m. – 3:00 p.m.
Session Chair: Dr. Krishna Kambhampaty
Room: Colman Ballroom B, Floor 8

1. **An Investigation of Initial Dropout and Effects of Engagement with Course Content in Massive Open Online Courses (MOOCs)**
   Gurazada, P. (Great Learning, India)*, Maity, M.* (Southeast Missouri State University, USA)

2. **Real-Time Music and Speech Segregation Using Evolutionary Voting Algorithms**
   Alshoshan, A. (Qassim University, Qassim, Saudi Arabia)

3. **Analysis of the Transfer Function of an LTI System for a Non-stationary Process**
   Alshoshan, A. (Qassim University, Qassim, Saudi Arabia)

4. **A Comparative Analysis of RAG and Non-RAG Models to Improve Access to Service Provider Information for Older Adults in Mississippi**
   Saei, S., Anreddy, S.(Mississippi State University, Starkville, USA)

3:30 p.m. – 5:00 p.m. COFFEE BREAK (Colman Ballroom Lobby, Floor 8)

SESSION 3

AI Horizons I — Models, Methods & Applications
Monday, October 20, 3:30 p.m. – 5:00 p.m.
Session Chair: Dr. Reshmi Mitra
Room: Colman Ballroom B, Floor 8

1. **Elitist Country-Segmented Memetic Algorithm: Integrating Multithreading and SIMD for Efficient Solution Search**
   Pastor, P., Tupia, M., Cueva, R. (Pontificia Universidad Católica del Perú, Av., Perú)

2. **BertDPRCNN: A Novel Approach to Text Classification Using Hybrid Deep Learning Models.**,
   Kallam, Y.(Pennsylvania State University, USA)*, Panchumarthi, Y., Parchuri, L, Padmanabhuni· S., Nunna· S.*(SRM University AP, India.)*, Kambhampaty, K .*(Pennsylvania State University, USA)

3. **Ground Reaction Force Patterns Analysis with Deep Learning**
   Sha, Z. (Georgia Southwestern State University, USA)*, Li, Z., Yao, Y., Yuan, J.*(Southeast Missouri State University, USA)

4. **Prediction of adverse side effects of antidepressants using an expert system**
   Becerra-Vivanco, P., *Castro-Pastrana, L. I., and Rosas-Romero, R.*(Universidad de las Americas-Puebla, Mexico)

5. **A New Pseudo-Random Binary Generator Based on the Combination of Self-Shrinking Generators and Modified Self-Shrinking Generators Using Boolean Functions**
   Debnath, N.(Easten International University, Vietnam)*, Farías, A., Farías, A.* (University of La Rioja, Argentina)*, Montejano, G., Garis, A., Riesco, D* (National University of San Luis, Argentina).

8:00 a.m. – 8:45 a.m.   REGISTRATION and BREAKFAST

(Coffee, Tea, Pastries)

Location: Colman Ballroom Lobby, Floor 8

9:00 a.m. 10:00 a.m. KEYNOTE SPEAKER II

Mr. Nat Prakangpan

Vice President at Cyberbit

Beyond the Buzz: Delivering Real Outcomes in the Age of AI Skepticism

Abstract: As "AI-powered" becomes the most overused phrase in tech marketing, buyers are responding with growing skepticism. The age of novelty is over—executives and practitioners alike are demanding tangible results. In this keynote, we'll explore the shift from hype to outcomes, and what it means for builders and vendors.

Location: Colman Ballroom A, Floor 8

10:00 a.m. – 10:30 a.m. Coffee Break (Colman Ballroom Lobby, Floor 8)

SESSION 4

Cloud Futures, Blockchain Trust & P2P Innovation
Tuesday, October 21, 10:30 a.m. – 12:00 p.m.
Session Chair: Dr. Krishna Kambhampaty
Room: Colman Ballroom B, Floor 8

1. **ZK-Pyramid: A Pyramid Tree-Based P2P Framework for Trustworthy and Private Data Sharing Using Zero-Knowledge Succinct Proofs**
   Haque, M., Dahal, S., Roy, I., Mitra, R., **(**Southeast Missouri State University, USA**),** *Gupta, B.* **(**Southern Illinois University, USA**)**

2. **Authentication for IoT Devices to Access Satellite Networks**
   Parvathaneni, D., Sugathan, K., Roy, P., Bhattacharya, A. **(**Southern Illinois University, USA**),** *Roy, I.* **(**Southeast Missouri State University, USA**)**.

3. **Governing Blockchain-based Decentralized Systems**
   Pant, N., Ghosh, S., Upadhyay, H., Mitra, R. **(**Southeast Missouri State University, USA**)**

4. **Explainable AI-Augmented DevSecOps for Secure and Reproducible Cloud-Native Research Software**
   Mittal, A. **(**University of the Cumberlands, USA**)**

5. **Cost-Performance Analysis of Cloud-Based Retail Point-of-Sale Systems: A Comparative**

Study of Google Cloud Platform and Microsoft Azure
Pagidoju, R. **(** Campbellsville University, USA**)**

12:00 p.m. – 1:00 p.m. LUNCH *(on your own)*

SESSION 5	**AI Horizons II — Models, Methods & Applications** Monday, October 21, 1:00 p.m. – 2:30 p.m. Session Chair: Dr. Indranil Roy Room: Colman Ballroom B, Floor 8

1. **Analyzing Darknet Address Information with Machine Learning**
   Ward, T., Hinds, C., Graham, J. **(**Norfolk State University, USA**)**

2. **Detecting Deviations in User Activity Using Machine Learning**
   Miller, C., Bynum, K., Hinds, C. **(**Norfolk State University, USA**)**

3. **An Obstacle-Adaptive A∗ Heuristic for Path Planning: Comparative Analysis with RepulsionAugmented BFGS in Complex Environments**
   Raju, V. **(**North Dakota State University, USA**)**, *Dawar, D.* **(**Miami University, USA**)**, *Rahman, A.* **(** Engineering Institute of Technology, Australia**)**

4. **Bug Seeding in Open-Source: An OpenStack Study** *Sayani, P.*

5. **Optimization of Outdoor Air Utilization in Industrial Air Conditioning Using Support Vector Machines (SVM)**
   Debnath, N. **(**Easten International University, Vietnam**)**, *Gomez, R.* **(**National University of Villa Mercedes, Argentina**)**, *Abdelahad, C., Riesco, D., Montejano, G.* **(**National University of San Luis - Argentina**)**

2:30 p.m. CONFERENCE ENDS