

37th International Conference on  
**Computers and Their Applications**  
(CATA-2022)

# **PROGRAM**

Monday, March 21, 2022

Virtual Conference Online

Sponsored by



International Society for  
**Computers and Their Applications**

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Winona, MN 55987

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# 37th International Conference on Computers and Their Applications (CATA-2022)

## SPONSOR

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International Society for Computers and Their Applications (ISCA)

**General Chairs:** Dr. Bidyut Gupta, University of Southern Illinois Carbondale, USA

**Program Chairs:** Dr. Ajay Bandi, Northwest Missouri State University, USA  
Dr. Mohammad Hossain, University of Minnesota Crookston, USA

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**Monday, March 21, 2022**

**ALL times are in USA Central Daylight Saving Time (CDT)**

**8:55 a.m. – 9:00 a.m. WELCOME By CATA Organizers**  
**Bidyut Gupta, Ajay Bandi, Mohammad Hossain CATA Chairs**

**9:00 a.m. – 10:00 a.m. KEYNOTE SPEAKER**

**Dr. Henry Hexmoor**  
Professor, School of Computing  
Southern Illinois University, Carbondale, IL, USA  
“The Promises and Perils of Blockchain for the Internet of Everything”  
Session Chair: Dr. Bidyut Gupta, University of Southern Illinois Carbondale, USA

**10:00 a.m. – 10:05 a.m. 5 Minute Break**

**SESSION 1:**

**IOT AND ALGORITHM - I**

Monday, March 21, 2022, 10:05 a.m. - 11:25 p.m.

Session Chair: Dr. Bidyut Gupta (University of Southern Illinois Carbondale, USA)

- 1. An Ontology Based Approach towards End User Development of IoT**  
Narayan C. Debnath, Shreya Banerjee, Giau Ung Van, Phat Tat Quang and Dai Nguyen Thanh (Eastern International University, Vietnam)
- 2. Verifying and Assessing a Performance of an Automatic Vacuum Robot under Different Room Conditions**  
Thitivatr Patanasakpinyo, Natcha Chen, Natthikarn Singsornsri and Nattapach Kanchanaporn (Mahidol University, Thailand)
- 3. Cost Effective Service Oriented Model for Recruitment**  
Md Jakir Hossain Molla, Md Obaidullah Sk, Parveen Ahmed Alam (Aliah University, India), Narayan Debnath (Eastern International University, Vietnam) and Soumya Sen (University of Calcutta, India)
- 4. Dynamic Meta-Information Management for IoT-based Applications**  
Madhu Kumari, Sugyan Kumar Mishra (National Institute of Technology, India), Narayan C. Debnath (Eastern International University, Vietnam) and Anirban Sarkar (National Institute of Technology, India)

**11:25 a.m. – 11:30 a.m. 5 Minute Break**

**Session 2:**

**SOFTWARE ENGINEERING AND AI**

Monday, March 21, 2022, 11:30 a.m. - 12:50 p.m.

Session Chair: Dr. Mohammad Hossain (University of Minnesota Crookston, USA)

- 1. Application of Machine Learning on Software Quality Assurance and Testing: A Chronological Survey**  
Hongkai Chen (University of California San Diego, USA)  
and Mohammad Hossain (University of Minnesota Crookston, USA)
- 2. Designing Application Appropriateness for Augmented Reality with Requirement Integration from the User-Cursor Paradigm**  
Bradford Towle Jr. and Gabrielle Tristani (Florida Polytechnic University, USA)
- 3. Entropy Analysis for Modbus Traffic over TCP/IP in Industrial Control Systems**  
Logan Day, Tirthankar Ghosh, Sikha Bagui and Subhash Bagui (University of West Florida, USA)
- 4. DSRBT - Driving Safety Reward based on Blockchain Technology**  
Sruthi Rachamalla and Henry Hexmoor (Southern Illinois University, Carbondale, USA)

**12:50 p.m. – 1:05 p.m.     15 Minute Break**

**SESSION 3:**

**DATABASE AND SECURITY**

Monday, March 21, 2022, 1:05 p.m. – 2:25 p.m.

Session Chair: Dr. Md Minhaz Chowdhury (East Stroudsburg University, USA)

- 1. Event and Query Processing in a Fuzzy Active Graph Database System**  
Ayushi Vadwala and Ying Jin (California State University, Sacramento, USA)
- 2. Mobile Devices Vulnerabilities**  
Melissa Schneider, Md Minhaz Chowdhury (East Stroudsburg University, USA) and  
Shadman Latif (American International University, Bangladesh)
- 3. Ethical Hacking: Skills to Fight Cybersecurity Threats**  
Logan Smith, Md Minhaz Chowdhury (East Stroudsburg University, USA) and  
Shadman Latif (American International University, Bangladesh)
- 4. A Topic Modeling Method for Analyzes of Short-Text Data in Social Media Networks**  
Ian Macedo Maiwald Santos, Luciana de Oliveira Rech and Ricardo Moraes  
(Universidade Federal de Santa Catarina, Brazil)

**2:25 p.m. – 2:30 p.m.     5 Minute Break**

**SESSION 4:****AI AND ALGORITHM - II**

Monday, March 21, 2022, 2:30 p.m. - 3:50 p.m.

Session Chair: Dr. Ajay Bandi (Northwest Missouri State University, USA)

1. **Performance Study of Software-based Encrypting Data at Rest**  
Luka Daoud and Hingkwon Huen (Samsung Semiconductor Inc, USA)
2. **Hearthstone Battleground: An AI Assistant with Monte Carlo Tree Search**  
Namuunbadralt Zolboot, Quinn Johnson, Dakun Shen and Alexander Redei  
(Central Michigan University, USA)
3. **An Application for Simulating Patient Handoff Using 360 Video and Eye Tracking in Virtual Reality**  
Christopher Lewis, Sven Diaz-Juarez, Steven Anbro, Alison Szarko, Ramona Houmanfar, Laura Crosswell, Michelle Rebaleati, Luka Starmer and Frederick Harris  
(University of Nevada, Reno, USA)
4. **Facial Emotion Characterization and Detection using Fourier Transform and Machine Learning**  
Aishwarya Goudu and Shan Suthaharan  
(University of North Carolina at Greensboro, USA)

**3:50 p.m. – 4:00 p.m. Best Paper Award Announcement****ALL times are in USA Central Daylight Saving Time (CDT)**