

33rd International Conference on
Computers and Their Applications
(CATA 2018)

PROGRAM

March 19–21, 2018

Flamingo Hotel
Las Vegas, Nevada, USA

Sponsored by



International Society for
Computers and Their Applications

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33rd International Conference on Computers and Their Applications (CATA 2018)

SPONSOR

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General Chair: Les Miller, Iowa State University, USA

Program Chair: Gordon Lee, San Diego State University, USA

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In Soo Lee	<i>Kyungpook National University, South Korea</i>		
Hua Ming	<i>Oakland University</i>		

Schedule at a Glance

	8:45am - 9:00am	Welcoming Remarks: Red Rock 6
Monday 3/19	9:00am – 10:00am	Keynote I: Red Rock 6
	10:30am – 12:00pm	Session M-A2: Lake Mead 1&2
	<i>12:00pm – 1:30pm Lunch break (on your own)</i>	
	1:30pm – 3:00pm	Session M-P1: Lake Mead 1&2
	3:30pm – 5:00pm	Session M-P2: Lake Mead 1&2

Tuesday 3/20	9:00am – 10:00am	Keynote II: Red Rock 6
	10:30am – 12:00pm	Session T-A2: Lake Mead 1&2
	<i>12:00pm – 2:00pm Conference Luncheon: Red Rock 7&8</i>	
	2:00pm – 3:30pm	Session T-P1: Lake Mead 1&2
	4:00pm – 5:30pm	Session T-P2: Lake Mead 1&2

Wednesday 3/21	8:30am – 10:00am	Session W-A1: Lake Mead 1	Session W-A2: Lake Mead 2
	10:30am – 12:00pm	Session W-A3: Lake Mead 1	Session W-A4: Lake Mead 2
	<i>12:00pm</i>		<i>Conference Ends</i>

Monday, March 19, 2018

8:00 a.m. – 3:30 p.m. REGISTRATION – Coffee, tea, pastries – Red Rock

8:45 a.m. – 9:00 a.m. WELCOME – Red Rock 6

**General Chair, CATA 2018: Les Miller, Iowa State University
Program Chair, CATA 2018: Gordon Lee, San Diego State University
General Chair, BiCOB 2018: Oliver Eulenstein, Iowa State University
Program Co-Chair, BiCOB 2018: Hisham Al-Mubaid, University of Houston-Clear Lake
Program Co-Chair, BiCOB 2018: Qin Ding, East Carolina University**

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

**Dr. Rajender Singh Chhillar
Maharshi Dayanand University**

**AN OPTIMIZED TESTING TECHNIQUE FOR TEST DATA GENERATION
USING FUSION OF UML DIAGRAMS AND GENETIC ALGORITHMS**

Location: Red Rock 6

Session Chair: Gordon Lee (San Diego State University)

10:00 a.m. – 10:30 a.m. COFFEE BREAK

SESSION M-A2

MACHINE LEARNING

Monday March 19, 10:30 a.m. – 12:00 p.m., Lake Mead 1&2
Session Chair: Ka C. Cheek (Oakland University)

- 1. An Investigation of the Role of Feature Selection on the Classification Performance of Machine Learning Algorithms**
Tamer Aldwairi (Mississippi State University and Ursinus College), Dilina Perera (Mississippi State University and Texas A&M University) and Mark A. Novotny (Mississippi State University)
- 2. Machine Learning Within a Con Resistant Trust Model**
Md. Minhaz Chowdhury and Kendall E. Nygard (North Dakota State University)
- 3. Status Discrimination of Dairy Cows using Activity Meter and Machine Learning**
Yusuke Ono, Hayato Ohwada and Hiroyuki Nishiyama (Tokyo University of Science, Japan)
- 4. Eye-Hand Tracking Simulator for Training AI Learning Systems**
Ka C. Cheek (Oakland University)

12:00 p.m. – 1:30 p.m. LUNCH BREAK ON OWN

SESSION M-P1

WORKFLOW AND LOAD ISSUES IN COMPUTING

Monday March 19, 1:30 p.m. – 3:00 p.m., Lake Mead 1&2
Session Chair: Richard Hurley (Trent University, Canada)

- 1. Multicore Shared-Tree Multicasting – An Efficient Group-Based Load-Shared Approach**
Bidyut Gupta (Southern Illinois University), Ashraf Alyanbaawi (Southern Illinois University) and Ziping Liu (Southeast Missouri State University)
- 2. Why Is My LMS So Slow? A Case Study of D2L Performance Issues**
Sourish Roy and Carey Williamson (University of Calgary, Canada)
- 3. Modeling Cloud WorkFlows Using Computation Structure Model**
Abdullah Alenizi (University of Connecticut), Raafat Elfouly (Rhode Island College), Abdelfattah Amamra (California State Polytechnic University) and Reda Ammar (University of Connecticut)
- 4. Comparison of Sender and Receiver-Initiated Load Balancing in a Distributed Web Caching System**
Richard Hurley and Brandon Plumley (Trent University, Canada)

3:00 p.m. – 3:30 p.m. COFFEE BREAK

SESSION M-P2

SOFTWARE AND APPLICATIONS I

Monday March 19, 3:30 p.m. – 5:00 p.m., Lake Mead 1&2
Session Chair: Bidyut Gupta (Southern Illinois University)

- 1. Combined Multi-Facet Texture Categorization for Analyzing CT Scans**
Nikita V. Orlov and Luigi Ferrucci
(National Institute on Aging, National Institute of Health)
- 2. Secured Data Lookup in LDE Based Low Diameter Structured P2P Network**
Nick Rahimi, Bidyut Gupta, and Shahram Rahimi (Southern Illinois University)
- 3. Predicting Social Network Check-in Locations: Noise Impact Reduction for Classification**
Elnaz Jedari Fathi, Shahram Rahimi and Dunren Che (Southern Illinois University)
- 4. Design of a New Hierarchical Structured Peer-to-Peer Network Based On Chinese Remainder Theorem**
Bidyut Gupta, Nick Rahimi, Henry Hexmoor, and Koushik Maddali
(Southern Illinois University)

Tuesday, March 20, 2018

8:00 a.m. – 3:30 p.m.

REGISTRATION – Coffee, tea, pastries – Red Rock

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

Dr. Dan Gusfield
University of California, Davis
Integer Linear Programming in Computational and Systems Biology
Location: Red Rock 6
Session Chair: Hisham Al-Mubaid (University of Houston-Clear Lake)

10:00 a.m. – 10:30 a.m. COFFEE BREAK

SESSION T-A2

IMAGE PROCESSING

Tuesday March 20, 10:30 a.m. – 12:00 p.m., Lake Mead 1&2
Session Chair: Frederick C. Harris, Jr. (University of Nevada at Reno)

- 1. A Labeling Method Using EEG for Dozing Prediction by Facial Expression Recognition Technology**
Daichi Naito, Ryo Hatano and Hiroyuki Nishiyama (Tokyo University of Science, Japan)
- 2. Integration of Fully Pipelined Rijndael 256 in a Reconfigurable Logic with an External Memory**
Alvaro Cintas Canto and Omar Elkeelany (Tennessee Technological University)
- 3. Extracting Useful UI Features for Users with Different Levels of Spatial Visualization**
Thitivatr Patanasak Pinyo (Mahidol University, Thailand), Georgi Batinov (Iowa State University), Kofi Whitney (Iowa State University), Adel Sulaiman (Iowa State University), Les Miller (Iowa State University) and Stephen Gilbert (Iowa State University)
- 4. A Linear-Time Visualization Algorithm for Drawing Planar Graphs Represented by Regions**
Jeffery A. Stuart, Brian T. Westphal, Bei Yuan, and Frederick C. Harris, Jr. (University of Nevada at Reno)

**12:00 p.m. – 2:00 p.m. CONFERENCE LUNCHEON
AND BEST PAPER AWARD**

Location: Red Rock 7&8

SESSION T-P1**PERFORMANCE ISSUES IN COMPUTING**

Tuesday March 20, 2:00 p.m. – 3:30 p.m., Lake Mead 1&2
Session Chair: Yan Shi (University of Wisconsin-Platteville)

- 1. Remapping Method to Minimize Makespan of Simulink Model for Embedded Multi-core Systems**
Sasuga Kojima (Osaka University, Japan), Masato Eda Hiro (Nagoya University, Japan) and Takuya Azumi (Osaka University, Japan)
- 2. Performance Evaluations of Two Fast Join Query Processing Methods: Join Core and Join Indices**
Reham M. Almutairi (Southern Illinois University), Mohammed Hamdi (Southern Illinois University), Feng Yu (Youngstown State University) and Wen-Chi Hou (Southern Illinois University)
- 3. Integrating an 802.11 Wireless Application in a Linux Kernel Module with a Bare PC Application**
Rasha A. Almajed, William Agosto-Padilla, Ramesh K. Karne and Alexander L. Wijesinha (Towson University)
- 4. Scenario-Based Analysis of IoT Protocols at Device and Application Layers**
C A Monoceros and Yan Shi (University of Wisconsin-Platteville)

3:30 p.m. – 4:00 p.m. COFFEE BREAK

SESSION T-P2**SOFTWARE AND APPLICATIONS II**

Tuesday March 20, 4:00 p.m. – 5:30 p.m., Lake Mead 1&2
Session Chair: Gongzhu Hu (Central Michigan University)

- 1. Online Job Opening Bulletin Board System**
Thomas W. Davis, Ilhyun Lee, Haesun Lee and A. Michelle Clements Davis (The University of Texas of the Permian Basin)
- 2. Automatic Test Case Generation and Optimization using UML Diagrams and Ant Colony Optimization**
Namita Khurana and Rajender Singh Chhillar (Maharshi Dayanand University, India)
- 3. Optimal Query Path Selection in Lattice of Cuboids using Novel Heuristic Search Algorithm**
Santanu Roy (Future Institute of Engineering and Management, India), Soumya Sen (University of Calcutta, India) and Narayan C Debnath (ISCA)
- 4. Reliable, Intelligent, and Large Scale E-Health Architecture using Wireless Sensor Networks**
Sultan Al-Jahdali and Abdulaziz Alangari (Taif University, Saudi Arabia)

Wednesday, March 21, 2018*

8:00 a.m. – 11:00 a.m.

REGISTRATION – Coffee, tea, pastries – Red Rock

SESSION W-A1

DATA MINING

Wednesday March 21, 8:30 a.m. – 10:00 a.m., Lake Mead 1
Session Chair: Mohamad El-Hajj (MacEwan University, Canada)

- 1. Churn Prediction Using Text Mining for Job Search Sites**
Kazuya Uekado, Hayato Ohwada and Masaaki Suzuki
(Tokyo University of Science, Japan)
- 2. Discovering Changing Demographics in the Canadian Census Using Data Analysis**
Brett Anderson, Mohamad El-Hajj, Zachary Kipp, and Jack Staples
(MacEwan University, Canada)
- 3. Server Failure Detection System Based on Inductive Logic Programming and Random Forest**
Takuma Shimada, Ryo Hatano, and Hiroyuki Nishiyama
(Tokyo University of Science, Japan)
- 4. Analysis of Trends in Professional Hockey Using Data Mining Techniques**
Jeff Hofer and Mohamad El-Hajj (MacEwan University, Canada)

SESSION W-A2

APPLICATIONS IN COMPUTING I

Wednesday March 21, 8:30 a.m. – 10:00 a.m., Lake Mead 2
Session Chair: Donna L Hudson (University of California, San Francisco)

- 1. Comparing Evolutionary Algorithms using KEEL**
Kailyn Kieffer (Elon University) and Qin Ding (East Carolina University)
- 2. A Designer Guided Tolerance Specification for Fit Assurance**
Faryar Etesami (Portland State University)
- 3. Data Hiding Text under Text by using Hexadecimal Algorithm**
Hebah H. O. Nasereddin, Yaman F. Abdullah and Dalia Y.S. Jallad
(Middle East University, Jordan)
- 4. Intersection of Biomedical Informatics and Medical Applications**
Donna L Hudson (University of California, San Francisco), Maurice E Cohen (University of California, San Francisco) and S E Hudson (California State University, Bakersfield)

10:00 a.m. – 10:30 a.m. COFFEE BREAK

SESSION W-A3

MODELING

Wednesday March 21, 10:30 a.m. – 12:00 p.m., Lake Mead 1
Session Chair: Seung-yun Kim (The College of New Jersey)

- 1. Modeling Power Consumption of Mobile Devices Using a Hybrid Learning Approach with Crowdsourced Datasets**
Chung-Hong Lee, Sheng-Wen Tsai, Chih-Hung Wu and Bo-Chun Xu (National Kaohsiung University of Applied Sciences, Taiwan)
- 2. Analysis of Cell-Cell Interactions Using a Three-Dimensional Computational Model of Multicellular Tissue Growth**
Belgacem Ben Youssef (King Saud University, Saudi Arabia)
- 3. Using Timed Petri nets to Regulate Optimal Game Strategy**
Philip Franco, Patrick Hansen, and Seung-yun Kim (The College of New Jersey)

SESSION W-A4

APPLICATIONS IN COMPUTING II

Wednesday March 21, 10:30 a.m. – 12:00 p.m., Lake Mead 2
Session Chair: Gordon Lee (San Diego State University)

- 1. Trending Topic Extraction from Twitter for an Arabic Speaking User**
Ahmed Rafea and Nada A. GabAllah (American University in Cairo, Egypt)
- 2. An Attempt to Beat the World Record for the Longest Palindrome**
André Trudel (Acadia University, Canada)
- 3. Using Twitter to Determine GMO Perception Differences between Countries**
Feng Chang, Krishna K. Kambhampaty, Md Minhaz Chowdhury and Kendall E. Nygard (North Dakota State University)