

ACM Southeast Conference 2024

Conference Program

April 18-20

Kennesaw State University, Marietta Campus

Marietta, Georgia, USA



Association for
Computing Machinery

Advancing Computing as a Science & Profession

A Note from the Committee:

Welcome to the 2024 ACM Southeast Conference! We are excited the day has finally arrived! Thank you for your submissions and all of the work you invested in perfecting your work. We appreciate your patience throughout the submission, review, and planning process. Many of you provided assistance in the planning process, and for that, we are eternally grateful! All of the papers, posters, tutorials, and workshops being presented are excellent works, and we hope you enjoy the conference!

The ACM Southeast (ACMSE) conference is the oldest, continuously running, annual conference of the Association for Computing Machinery (ACM). ACMSE provides an excellent forum for students, faculty, researchers, and industry practitioners to present their research in a friendly and dynamic atmosphere in all areas of computer science.

The 62nd ACMSE 2024 Conference will be held in the College of Computing and Software Engineering at Kennesaw State University, Marietta, Georgia. It will be celebrated as a fully in-person event on April 18-20, 2024. The conference will host many events, including paper presentations, poster presentations, tutorials/workshops, keynote speeches, student competitions, a Ph.D. symposium, industrial practitioner displays, and cultural events.

This year, we received a total of 105 submissions, comprising 102 reviews for full papers and 146 reviews for short papers. Among the submissions, there were 20 of them being accepted for long papers, resulting in an acceptance rate of 19%. Additionally, there were 22 accepted for short papers, yielding an acceptance rate of 25.88%. Moreover, there were 8 posters accepted. Furthermore, two tutorial proposals and one workshop were accepted, alongside two Ph.D. papers for the Ph.D. symposium.

The authors of the submissions hail from various parts of the globe. Specifically, there were 4 authors from Bangladesh, 2 from Colombia, 1 from Hong Kong, 11 from India, 1 from Macao, 2 from Portugal, 8 from Thailand, 240 from the United States, 2 from Venezuela, and 2 from the Virgin Islands.

If you wish to assist in the planning of future conferences, please let us know.

Wi-Fi access is available at the conference. Please use the following information:

<https://uits.kennesaw.edu/support/wifi.php>

The digital program may be accessed via the Cvent Attendee Hub App.

Thank you again for your involvement in ACMSE 2024! We especially want to thank those of you who reviewed papers. Without your help, the conference would not be possible.

ACMSE 2024 Conference Chair, Prof. Dan C. Lo

ACMSE 2024 Conference Committee

Proceedings Chair: Eric Gamess, Jacksonville State University

Webmaster: Kuang-Nan Chang, Eastern Kentucky University

Poster/Workshop/Tutorial Chair: Mario Guimaraes, Southeast Missouri State University

Treasurer: Xinyue Zhang, Kennesaw State University

Local Arrangements Chair: Bobin Deng, Kennesaw State University

Sponsors and Exhibitors: William McKenna, Kennesaw State University Faculty

Ph.D. Symposium Chair: Abhishek Parakh, Kennesaw State University

Student Programming Competition Chair: Bob Lowe, Southeast Missouri State University

Conference Chair, Dan C. Lo, Kennesaw State University

Schedule At --- A --- Glance

Wednesday 4/17

Time	Activity	Location
9:00 AM --- 5:00 PM	Preparation, Signage, Banners, Tables	J and I2
6:00 PM --- 9:00 PM	Committee Meeting & Dinner	TBA

Thursday 4/18

Time	Activity	Location
7:30 --- 9:00	Registration, Programming Competition Teams Check-in	J-100 Atrium Lobby
9:00 --- 10:30	Session I	J-101
	Session II	J-135
10:30 --- 10:50	Break	Coffee and snacks J-100 Atrium Lobby
10:50 --- 11:50	Session III	J-101
	Session IV	J-135
12:00 --- 12:30	Lunch	Lunch buffet at J-101
12:45 PM	Opening: Dean of CCSE	I2-112
13:00 --- 14:15	Keynote I: Navigating the Quantum Frontier: Unleashing Innovation in the Age of Quantum Computing and AI by Flavio Villanustre, CISSP	I2-112
14:20 --- 15:50	Session V	I2-112
	Session VII	J-101
	Session VIII	J-135
16:10 --- 17:10	Session VI	I2-112
16:00 --- 17:15	Tutorial I: Hallucination-Free Generative LLM for Learning Enrichment on Edu Data	J-135

Friday 4/19

Time	Activity	Location
7:30 --- 9:00	Registration	J-100 Atrium Lobby
9:00 --- 10:30	Session IX	J-101
	Session XII	J-135
10:30 --- 10:50	Break	Coffee and snacks J-100 Atrium Lobby
10:50 --- 11:50	Session X	J-101
	Session XIII	J-135
12:00 --- 12:30	Lunch	Lunch buffet at J-101
12:30 --- 13:50	Keynote II: The IEEE Rebooting Computing Initiative: A Retrospective by Tom Conte	J-101
14:00 --- 15:30	Session XI	J-101

	Session XIV	J-135
15:30 --- 15:50	Break	Coffee and snacks J-100 Atrium Lobby
15:00 --- 17:00	Poster Session	J-100 Atrium Lobby
15:50 --- 17:00	NSF Noyce K-12 CS Teacher Education Workshop	J-101
15:50 --- 17:00	Tutorial II: Advanced Topics in the First Database Class	J-135
Time	Activity	Location
18:00 --- 21:00	Banquet and Award Ceremony (Live music performance by KSU Bailey School of Music)	J.M. Wilson Student Center Ballrooms A-201

Saturday 4/20

Time	Activity	Location
7:30 --- 9:00	Registration	J-100 Atrium Lobby
9:00 --- 10:30	Session XV	J-101
9:00 --- 10:00	Ph.D. Symposium	J-135
10:30 --- 10:50	Break	Coffee and snacks J-100 Atrium Lobby
10:50 --- 11:50	Session XVI	J-101
10:00 --- 11:15	Tutorial III: Creating Cybersecurity Awareness for CEO's	J-135
12:20	Lunch on your own	
12:30	City Tour	J-100 Lobby

Detailed Program Scheule (Long paper denoted by an asterisk at the end of the title)		
April 18, Room J-101	Session I. Exploring Innovations and Challenges in Electric Mobility	Chair by Dr. Kun Suo Kennesaw State University
Time	Title	Authors
9:00	Blockchain-based Decentralized Application for Electric Vehicle Scheduling at Charging Station*	Riya Kakkar, Sachi Chaudhary, Rajesh Gupta, Sudeep Tanwar, Suman Kumar
9:30	A Systematic Investigation of Hardware and Software in Electric Vehicular Platform*	Kun Suo, Long Vu, Md Romyull Islam, Nobel Dhar, Tu Nguyen, Selena He, Xiaofeng Wu
10:00	Living on the Electric Vehicle and Cloud Era: A Study of Cyber Vulnerabilities, Potential Impacts, and Possible Strategies*	Long Vu, Kun Suo, Md Romyull Islam, Nobel Dhar, Tu Nguyen, Selena He, Yong Shi
10:30	Coffee Break	
April 18, Room J-135	Session II. Exploring Innovations in Operating Systems and Online Education	Chair by Dr. Robert Lowe Southeast Missouri State University
Time	Title	Authors
9:00	A Flexible and Broad Operating System Project*	Robert Lowe
9:30	Effect of LMS Course Structure on Student Success in Asynchronous Online Course	Cindy Robertson, Anca Doloc-Mihu
10:00	Assessing Mini-Learning Communities in General Education Computing Classes*	Cindy Robertson, David Kerven
10:30	Coffee Break	
April 18, Room J-101	Session III. Advancing Privacy Protection through Encrypted Technologies	Chair by Dr. University of North Dakota
Time	Title	Authors
10:50	Privacy-Preserving Mobile Advertising Using ElGamal Encryption and Private Proximity Testing	Sanjaikanth E Vadakkethil Somanathan Pillai, Wen-Chen Hu
11:20	Privacy-Preserving Gross Domestic Product (GDP) Calculation Using Paillier Encryption and Differential Privacy	Sanjaikanth E Vadakkethil Somanathan Pillai, Wen-Chen Hu
11:50	Lunch buffet preparation	
12:00	Lunch Time	
April 18, Room J-135	Session IV. Innovative Approaches in Data Science Education and Software Development Platforms	Chair by Dr. Steven Benzel University of North Georgia
Time	Title	Authors
10:50	SOTU: A Motivational Example for Data Science Courses	Steven Benzel, Ana Stanescu, Ping Ye
11:20	Test Case Expression in a Low-Code Development Platform	Ziliang Zhang, Jeff Gray
April 18, Room I2-112	Title	Authors
12:45	Opening Ceremony	Dean Sumanth Yenduri
13:00	Keynote I: Navigating the Quantum Frontier: Unleashing Innovation in the Age of Quantum Computing and AI	Flavio Villanustre, CISSP
April 18, Room I2-112	Session V. Advancements in Deep Learning, Quantum Computing, and Historical Data Analysis	Chair by Mr. Ethan Hunt Kennesaw State University
Time	Title	Authors
14:20	Optimum Deep Learning Method for Document Layout Analysis in Low Resource Languages	Md. Mutasim Billah Abu Noman Akanda, Maruf Ahmed, AKM Shahariar Azad Rabby, Fuad Rahman
14:50	Phase RAM: Phase Estimation's Application in QRAM	Ethan Hunt
15:20	Challenges of Automatic Document Processing with Historical Data*	Katerina Vilkomir, Nic Herndon
15:50	Coffee Break	
April 18,	Session VI. Investigating Large Language Models:	Chair by Dr. Bobin Deng

Room I2-112	Performance, Deployment, and Resource Management	Kennesaw State University
Time	Title	Authors
16:10	Large Language Models Performance Comparison of Emotion and Sentiment Classification*	Will Stigall, Md Abdullah Al Hafiz Khan, Dinesh Attota, Francis Nweke, Yong Pei
16:40	An Empirical Analysis and Resource Footprint Study of Deploying Large Language Models on Edge Devices*	Nobel Dhar, Bobin Deng, Dan Lo, Xiaofeng Wu, Liang Zhao, Kun Suo
April 18, Room J-101	Session VII. Innovations in Cybersecurity: From Phishing Detection to Genomic Security	Chair by Dr. Nic Herndon East Carolina University
Time	Title	Authors
14:20	Towards Improving Phishing Detection System Using Human in the Loop Deep Learning Model*	Sultan Asiri, Yang Xiao, Saleh Alzahrani
14:50	Genomics Cybersecurity Concerns, Challenges, and a Modular Test Lab*	Jared Sheldon, Scott Ross, Thomas Morris, Isabelle Brown, Feng Zhu, Patrick Pape, Phillip Whitlow
15:20	Enhancing Machine Learning Based SQL Injection Detection Using Contextualized Word Embedding ¹	Janet Zulu, Bonian Han, Izzat Alsmadi, Gongbo Liang
15:50	Coffee Break	
April 18, Room J-135	Session VIII. Enhancing Smart Grids and Electrical Systems: Insights and Innovations in AI and Multi-Agent Systems	Chair by Dr. Bharath Reddy Schneider Electric Automation R&D, Foxboro, Massachusetts
Time	Title	Authors
14:20	Building a Resilient and Sustainable Grid: A Study of Challenges and Opportunities in AI for Smart Virtual Power Plants*	Md Romyull Islam, Long Vu, Nobel Dhar, Bobin Deng, Kun Suo
14:50	Enhancing Interpretability of Electrical Load Forecasting with Architecture Optimization	Biju G. M., Gopinatha Pillai, Albin Jiji
15:20	A Multi-Agent System Approach for Mitigating Partial Display Failures*	Jacob Cappi, Jacob Hauenstein
15:50	Coffee Break	
April 18, Room J-135	Tutorial	
16:00	Tutorial I: Hallucination-Free Generative LLM for Learning Enrichment on Edu Data	Shobhan Kumar, Pavan Kumar, and Masoud Rouhizadeh
April 19, Room J-101	Session IX. Discovering Generative AI in Healthcare Information Systems: Promises and Challenges"	Chair by Dr. Suman Kumar Troy University
Time	Title	Authors
9:00	Impact of Blinking on Deep Learning based Iris Recognition	Daniel Tebor, Eli Headley, Mahmut Karakaya
9:30	Comprehensive Experiments on Breast Cancer Hematoxylin and Eosin-stained Images using UNet	Emily Jackson, Faye Le, Je'Dae Lisbon, Max Coleman, Jordyn Burman, Astrid Wonderley, Sepehr Eshaghian, Sanghoon Lee
10:00	Promise and Challenges of Generative AI in Helathcare Information Systems	Stanislav Ustymenko, Abhishek Phadke
10:30	Coffee Break	
April 19, Room J-101	Session X. Novel Approaches in Code Analysis and Secure Code Generation	Chair by Dr. Nic Herndon East Carolina University
Time	Title	Authors
10:50	Leveraging Eye Tracking and Targeted Regions of Interest for	Md Shakil Hossain, Andrew Allen,

¹ Synchronous Online

	Analyzing Code Comprehension*	Noushin Gauhar, Rushmila Shabneen
11:20	A Pilot Study on Secure Code Generation with ChatGPT for Web Applications	Mahesh Jamdade, Yi Liu
11:50	Lunch buffet preparation	
12:00	Lunch time	
12:30	Keynote II: The IEEE Rebooting Computing Initiative: A Retrospective	Tom Conte
April 19, Room J-101	Session XI. Studying Container Resilience, ML Model Prediction, and Optimization Algorithms in IoT Environments	Chair by Dr. Yong Shi Kennesaw State University
Time	Title	Authors
14:00	Image-Processing Workloads and DDoS Attack Resilience: Evaluating Docker and Podman Containers on Raspberry Pi and ODROID*	Eric Gamess, Mausam Parajuli
14:30	Prediction Performance Analysis for ML Models Based on Impacts of Data Imbalance and Bias	Chunlan Gao, Yong Shi
15:00	Exploring Firefly and Greywolf Algorithms for Multi-objective Optimization in Wireless Sensor Networks	Kelvin Ovabor, Travis Atkison
15:30	Coffee Break	
April 19, Room J-101	Workshop	
15:50	NSF Noyce K-12 CS Teacher Education Workshop	Dan Lo and Brian Lawler, Kennesaw State University
April 19, Room J-100	Title	
15:00	Poster (Accepted posters are listed below.)	
April 19, Room A-201	Title	
18:00	Banquet	
April 19, Room J-135	Session XII. Improvements in Brain-Computer Interfaces, Hate Speech Detection, and Financial Risk Assessment	Chair by Dr. Nic Herndon East Carolina University
Time	Title	Authors
9:00	Automated Alphabet Detection from Brain Waves	Christopher Dargan, Francis Nweke, Md Abdullah Al Hafiz Khan, Abm Adnan Azmee, Yong Pei
9:30	Evaluation of Different Machine Learning and Deep Learning Techniques for Hate Speech Detection	Nabil Shawkat, Jamil Saquer, Hazim Shatnawi
10:00	Benchmarking Machine Learning Techniques for Bankruptcy Prediction under Benign and Adversarial Behaviors	Xing Yin, Thai Le
10:30	Coffee Break	
April 19, Room J-135	Session XIII. Developments in Educational Tools and Fairness-Accuracy Trade-Offs in Machine Learning	Chair by Mr. Long Vu Kennesaw State University
Time	Title	Authors
10:50	A Testing Extension for Scratch	Herart Dominggus Nurue, Jeff Gray
11:20	Exploring Fairness-Accuracy Trade-Offs in Binary Classification: A Comparative Analysis Using Modified Loss	Christina Trotter, Yixin Chen
April 19, Room J-135	Session XIV. Innovative Approaches in Data Representation and Linguistic Corpus Development	Chair by Dr. Lizi Zhu Northeastern Illinois University, Chicago
Time	Title	Authors
14:00	Encoding Feature Models in Neo4j Graph Database*	Hazim Shatnawi, Jamil Saquer
14:30	PalmProbNet: A Probabilistic Approach to Understanding Palm Distributions in Ecuadorian Tropical Forest via Transfer Learning	Kangning Cui, Zishan Shao, Gregory Larsen, Victor Pauca, Sarra Alqahtani, David Segurado,

		João Pinheiro, Manqi Wang, David Lutz, Robert Plemmons, Miles Silman
15:00	Toshakhana: A Multidimensional Panjabi Corpus in Gurmukhi Script	Arvinder Kang, Thai Le, Yixin Chen
15:30	Coffee Break	
April 19, Room J-135	Tutorial	
15:50	Tutorial II: Advanced Topics in the First Database Class	Mario Guimaraes and Suhair Amer , Southeast Missouri State University
April 20, Room J-101	Session XV. Discovering Provenance and Advancements in AI for Education and IoT	Chair by Dr. Arthur Choi Kennesaw State University
Time	Title	Authors
9:00	MNIST-Fraction: Enhancing Math Education with AI-Driven Fraction Detection and Analysis	Pegah Ahadian, Yunhe Feng, Karl Kosko, Richard Ferdig, Qiang Guan
9:30	Evaluation of Thermal Stress on IoT-based Federated Learning	Yi Gu, Liang Zhao, Bobin Deng, Shaoen Wu
10:00		
10:30	Coffee Break	
April 20, Room J-101	Session XVI. Analyzing Performance in Sequence Alignment, Error Correction Strategies, and Topic Models	Chair by Dr. Lizi Zhu Northeastern Illinois University, Chicago
Time	Title	Authors
10:50	Performance Analysis of Multiple Sequence Alignment Tools*	Bharath Reddy, Richard Fields
11:20	Open-Locating-Dominating Sets with Error Correction	Devin Jean, Suk Seo
11:50	On Provenance in Topic Models	Misha Sharma, Arthur Choi
12:20	Lunch on your own	
April 20, Room J-135		Chair by Dr. Abhishek Parakh Kennesaw State University
9:00	Ph.D. Symposium: Maximizing Learning Outcomes: Autograding in Scratch Programming	Herart Dominggus Nurue
9:30	Ph.D. Symposium: Revolutionizing Healthcare with Quantum Molecular Dynamic Simulation of Entanglement vs. Disentanglement in Medical Advancements	Kiran Mai Narnavaram
April 20, Room J-135	Tutorial	
10:00	Tutorial III: Creating Cybersecurity Awareness for CEO's	Mario Garcia , Southeast Missouri State University
12:20	Lunch on your own	
12:30	City Tour	J-100 Lobby

Accepted Posters:

Title	Authors
Towards a Brain-Computer Interface Framework for Multi- Party Robot Applications	Myles Lewis, Wesley Junkins, Chanakya Setty and Chris Crawford
Teaching Art Creation with Augmented Reality (AR) and ARTIVIVE	Kelechi Ariwodo, Carina George, Thien Nghi Duong, Anca Doloc-Mihu and Cindy Robertson
Gemini's Multimodal Prowess: Robust Detection of Adversarial Patch Attacks through Text and Image Inputs	Shahzad Sayyafzadeh, Hongmei Chi and Mark Weatherspoon
An Open-Source ChatBot by Using ParlAI	Kiran Mai Naravaram and Dan Chia-Tien Lo
Teaching Sound Editing with Audacity and Makey Makey	Kevin Rubio, Sam Downs, Jasmine Roach, Ammar Mehicevic, Anca Doloc-Mihu and Cindy Robertson
Enhanced Test Case Expression for End-User Developers	Ziliang Zhang and Jeff Gray
An Augmented Machine Learning-Based Course Enrollment Recommender System	Lizi Zhu, Oleg Perchyk and Xiwei Wang
Evaluating LSTM Time Series Prediction Performance on Benchmark CPUs and GPUs in Cloud Environments	Aditi Saha, Mohammad Rahman and Fan Wu

Live Music Performance at the Banquet Presented by the KSU Bailey School of Music

Joey Garcia-saxophone
 Ben Lakly-piano
 Eisen Griffin-bass
 Brick Harpe-drums

Pieces:

Stars Fell On Alabama-Frank Perkins
 Georgia On My Mind-Hoagy Carmichael
 Lucky Southern-Keith Jarrett
 Tennessee Waltz-Stewart & King

Keynote I: 1:00 PM, April 18, I2-112

Speaker: Dr. Flavio Villanustre, CISO & Vice President Technology, LexisNexis Risk Solutions



Title: Navigating the Quantum Frontier: Unleashing Innovation in the Age of Quantum Computing and AI

Abstract: In the keynote "Navigating the Quantum Frontier: Unleashing Innovation in the Age of Quantum Computing and AI," attendees will embark on an exhilarating journey through the intersection of quantum computing and artificial intelligence (AI). As we stand on the brink of a technological revolution, this keynote delves into the transformative potential of quantum computing, where classical computing's limitations fade into insignificance.

Attendees will explore how quantum computing, with its mind-bending principles of superposition and entanglement, holds the promise of revolutionizing industries, from finance to healthcare, by solving complex optimization and simulation problems that are currently beyond the reach of classical computers. Moreover, we will unravel how quantum machine learning algorithms are poised to unlock unprecedented insights from vast datasets, propelling AI to new heights of efficiency and accuracy.

Throughout the keynote, we'll navigate the practical challenges and opportunities inherent in this quantum frontier. From harnessing the power of quantum algorithms to grappling with the intricacies of quantum error correction, attendees will gain valuable insights into how to leverage quantum computing and AI synergistically to drive innovation and gain a competitive edge.

Ultimately, "Navigating the Quantum Frontier" empowers attendees to seize the boundless opportunities presented by the convergence of quantum computing and AI, inspiring them to embark on a journey of exploration, discovery, and innovation in this exciting new era of technology.

Bio: Flavio Villanustre is a visionary leader, technologist, and entrepreneur with a passion for leveraging cutting-edge technologies to drive innovation and solve complex challenges. With a diverse background spanning multiple industries, he has established himself as a prominent figure in the fields of cybersecurity, big data analytics, and open-source software development. Born with a natural curiosity and a knack for problem-solving, Flavio embarked on his journey in the tech world at a young age.

Throughout his career, Flavio has held various leadership roles in both startups and established companies, where he has consistently demonstrated his ability to drive growth and innovation. His expertise lies in architecting and implementing robust cybersecurity solutions, developing scalable big data platforms, and fostering open-source communities. Flavio is perhaps best known for his role as the Senior Vice President of Technology and Chief Information Security Officer at LexisNexis Risk Solutions, a global leader in providing information solutions to businesses and government agencies. In this capacity, he has played a pivotal role in shaping the company's technology strategy and leading initiatives to enhance cybersecurity posture and data analytics capabilities.

In addition to his corporate endeavors, Flavio is deeply committed to contributing to the broader tech community. He is a strong advocate for open-source software and has been actively involved in various open-source projects throughout his career. His contributions have helped drive innovation and collaboration within the global tech community. Beyond his

professional accomplishments, Flavio is also a sought-after speaker and thought leader, frequently sharing his insights and expertise at industry conferences and events. He is passionate about mentoring the next generation of tech professionals and empowering others to pursue their passions in technology.

Keynote II: 12:30 PM, April 19, J-101

Speaker: Prof. Tom Conte



Title: The IEEE Rebooting Computing Initiative: A Retrospective

Abstract: In 2013, the IEEE launched the Rebooting Computing Initiative (RCI) with the intention to re-examine all levels of how we compute. Back then, the term “post-Moore” was just coming into vogue. The RCI held several invitation-only summits and then opened the doors to others by launching the International Symposium on Rebooting Computing. Through the intervening years, many new ideas in how to rethink our computing levels of abstraction have been proposed. This talk examines some of those proposals, discusses their current status, and reviews the road ahead

Bio: Tom Conte is the Associate Dean for Research for the College of Computing at Georgia Tech. He also holds a joint appointment in the Schools of Computer Science and Electrical & Computer Engineering. Conte is the past (founding) director of the Center for Research into Novel Computing Hierarchies. His research is in the areas of computer architecture and compiler optimization, with emphasis on novel and post-Moore ways to compute. Conte served as the 2015 President of the IEEE Computer Society, and is also a fellow of the IEEE. In 2012, he has co-founded the IEEE Rebooting Computing Initiative. He is currently the Chair of the Communications of the ACM News Board.

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