IEEE IRI 2025 Program (version: July 22, 2025)

		Wednesday (Aug 6) Student Volunteers:		Thursday (Aug 7) Student Volunteers:		Friday (Aug 8) Student Volunteers:	
8:20 9:30		**Opening & Keynote 1 by Prem Devanbu (UC Davis)**		**Awards & Keynote 3 by Edward Y. Chang (Stanford University)**		**Keynote 5 by Ed H. Chi (Google DeepMind)**	
9:30 9:45		**Coffee Break**					
9:45 11:30		**A1 Milpitas room** *AI in Software Engineering and Coding* Chair:	**A2 Fremont/Cupertino room** *AI Applications in Weather Prediction* Chair:	9:45 – 10:45 Tutorial by: Balaji Palanisamy **Title: Decentralized Protection and Delivery of Private Information using Smart Contracts**		**G1 Milpitas room** *AI for Society* Chair:	**G2 Fremont/Cuper. room** *DL applications* Chair:
				D1 Milpitas *AI in Health* Chair:	**D2 Fremont/Cupertino** *Federated Learning* Chair:		
11:30 13:00		**Lunch Break**					
13:00 14:00		**Keynote 2 by Bhavani Thuraisingham (UT Dallas)**		**Keynote 4 by Alexei (Alyosha) Efros (UC Berkeley)**		**Keynote 6 by Aaron Hertzmann (Adobe Research)**	
14:00 14:15		**Break**					
14:15 16:00		**B1 Milpitas room** *Large Language Models* Chair:	**B2 Fremont/Cupertino** *AI for Science and Education* Chair:	**E1 Milpitas room** *Computer Vision* Chair:	**E2 Fremont/Cupertino** *Security* Chair:	**H1 Milpitas room** *NLP and AI-assistants* Chair:	
16:00 16:15		**Break**					
16:15 18:00		**C1 Milpitas** *eXplainable AI* Chair:	**C2 Fremont/Cupertino** *AI for Smart Cities and Environment* Chair:	**F1 EMERITE Workshop** Chair: Min-Yuh Day	**F2 Fremont/Cupertino AIHC Workshop** Chair: Lydia Bouzar-Benlabiod		
19:00 21:00				**Banquet**			

8:20-9:30	Welcome, Conference Opening Remarks (General Chairs, PC Chairs)
	Keynote 1: "LLMs (for code) sometimes make mistakes. When should I trust them?" *by Prem Devanbu (University of California, David)* **Session Chair**: Nan Niu
9:30 - 9:45	Coffee Break
9:45-11:30	**Session A**
	Session A1 AI in Software Engineering and Coding **Session Chair:**
IRI-47 (15 min)	**Leveraging LLMs for Automatic Feature Extraction in Embedded Systems to Support Software Reuse** *A A Talha Talukder (Trent University), Omar Alam (Trent University), and Akramul Azim (Ontario Tech University)*
IRI-87 (15 min)	**A Meta-Learning Approach to Generating Functional Descriptions of Graphical User Interfaces** *Naga Mamata Iluru (University of Cincinnati), Nan Niu (University of Cincinnati), Yitong Yang (Shanghai University of Finance and Economics), and Yinglin Wang (Shanghai University of Finance and Economics)*
IRI-34 (15 min)	**GRFuzz: A Deep Reinforcement Learning Approach to Python Library Fuzzing with GRPO** *Viet-Anh Le-Minh (Hanoi University of Science and Technology), Hai-Anh Tran (Hanoi University of Science and Technology), Huy-Hieu Nguyen (Hanoi University of Civil Engineering), Nam-Thang Hoang (Hanoi University of Civil Engineering), and Truong Tran (The Pennsylvania State University)*
IRI-28 (15 min)	**Change Impact Analysis using Machine Learning: A Systematic Literature Review** *Sandeep Reddivari (University of North Florida) and Shree Raksha Arsikere Pattabhi Ramu (University of North Florida)*
IRI-76(15min)	**Evaluation of a Conceptual Framework for the Resilience of Unit Test Suites to Refactoring** *Daniel Knight (Mississippi State University) and Tanmay Bhowmik (Mississippi State University)*
IRI-65 (15 min)	**MalCodeAI: Autonomous Vulnerability Detection and Remediation via Language Agnostic Code Reasoning** *Jugal Gajjar (George Washington University), Kamalasankari Subramaniakuppusamy (George Washington University), and Noha El Kachach (George Washington University)*
	Session A2 AI Applications in Weather Prediction **Session Chair:**
IRI-23 (15 min)	**STCN-Ozone: A Graph-Based Spatiotemporal Forecasting Framework for Modeling Tropospheric Ozone** *Chaian Khan (University of Missouri-Kansas City), Mohammadreza Akbari Lor (University of Missouri-Kansas City), Shu-Ching Chen (University of Missouri-Kansas City), Mei-Ling Shyu (University of Missouri-Kansas City), and Amy Christiansen (University of Missouri-Kansas City)*
IRI-80 (15min)	**An AI-based Methodology for Digitizing Historical Tabular Data with High Accuracy**

IRI-63 (15 min)	**Online Projected Gradient Descent for Grid Regulated Power Point Tracking Under Highly Fluctuating Weather and Load** *Muhy Eddin Za'ter (University of Colorado Boulder), Sandy Yacoub (Princess Sumaya University for Technology), and Majd Ghzai (Princess Sumaya University for Technology)*
IRI-67 (15 min)	**Evaluating Multi-Weather Impacts on the U.S. Power Grid Reliability** *Sangkeun Lee (Oak Ridge National Laboratory), Supriya Chinthavali (Oak Ridge National Laboratory), Narayan Bhusal (Oak Ridge National Laboratory), Viswadeep Lebakula (Oak Ridge National Laboratory), Jacob Morris (Oak Ridge National Laboratory), and Giri Iyer (Oak Ridge National Laboratory)*
IRI-45 (15 min)	**Media Impact Index for Disaster Vulnerability Assessment: A Thematic Classification and Vulnerability Indexing Framework** *Jainil Anilkumar Patel (University of Missouri-Kansas City), Mohammadreza Akbari Lor (University of Missouri-Kansas City), Shu-Ching Chen (University of Missouri-Kansas City), Mei-Ling Shyu (University of Missouri-Kansas City), and Steven Luis (Florida International University)*
IRI-75 (15 min)	**HexWeather: Hexagonal Spatial Data Aggregation for Weather-Driven Grid Resilience Analysis** *Jacob Morris (Oak Ridge National Laboratory), Sangkeun Lee (Oak Ridge National Laboratory), Narayan Bhusal (Oak Ridge National Laboratory), Nasir Ahmad (Oak Ridge National Laboratory), Supriya Chinthavali (Oak Ridge National Laboratory), and Giri Iyer (Oak Ridge National Laboratory)*
11:30-13:00	**Lunch break**
13:00-14:00	**Keynote 2: "Trustworthy Artificial Intelligence for Securing Transportation Systems" by Bhavani Thuraisingham (University of Texas, Dallas)** **Session Chair**: Mei-Ling Shyu
14:00 - 14:15	**Break**
14:15 – 16:00	**Session B**
	Session B1 Large Language Models **Session Chair:**
IRI-89 (15 min)	**LLM-Rank: An Unsupervised Keyword Extraction Method Using Local Large Language Models** *Xiaoke Jia (Auburn University), Chad Roller (University of Oklahoma), and Chenggang Wang (University of Oklahoma).*
IRI-99 (15 min)	**The AI Imitation Game: A Cognitive Comparison of Mimicry in Large Language Models** *Victor Wen (University of Montana), Zedong Peng (University of Montana), and Yusi Chen (University of Montana)*
IRI-69 (10 min)	**Benchmarking Fine-Tuning Strategies for LLaMA: A Multi-Dimensional Evaluation for National Security Contexts** *Devon Brown (Howard University), Rawat Danda (Howard University), Melissa LaDuke (National Intelligence University), and Brian Lanigan (United States Coast Guard)*
	Session B2 AI for Science and Education **Session Chair:**

IRI-35 (15 min)	**Accelerating Drug Discovery with Deep Reinforcement Learning: Molecular Generation Using Deep Q-Network** *Esmaeil Shakeri (University of Calgary) and Behrouz Far (University of Calgary)*
IRI-9 (15min)	**Course Recommender System Using Hybrid Machine Learning for Higher Education** *Shrooq Algarni (University of Idaho) and Frederick Sheldon (University of Idaho)*
IRI-44 (15 min)	**Automatic Scientific Discoveries Using a Public Collection of Characterized Semantic Predications** *Nicola Raffaele Di Matteo (Dalhousie University)*
IRI-98 (15 min)	**Information Integration in Social Science Research: Advances with LLMs in the NAIP Project**
16:00-16:15	Coffee Break
16:15 – 18:00	**Session C**
	Session C1 eXplainable AI **Session Chair:**
IRI-21 (15 min)	**An Explainable AI Framework for Wire Crimping Specification Prediction and Toolset Family Identification** *Lige Gan (Oakland University), Xiao Yue (Oakland University), Bryan Sandoval (Yazaki North America, Inc.), Michael Boyd (Yazaki North America, Inc.), and Guangzhi Qu (Oakland University)*
IRI-86 (15 min)	**Early Detection of Alzheimer's Using MRIs and Explainable 3D CNNs** *Hamza Ben Alla (Acadia University) and Lydia Bouzar-Benlabiod (Acadia University)*
IRI-64 (15 min)	**Causal Explainability of Machine Learning in Heart Failure Prediction from Electronic Health Records** *Yina Hou (Tennessee State University), Shourav Rabbani (Tennessee State University), Liang Hong (Tennessee State University), Norou Diawara (Old Dominion University), and Manar Samad (Tennessee State University)*
IRI-51 (10 min)	**Enhancing RAG with Domain-Specific Knowledge Graphs for Accurate Medical Data Retrieval** *Saumya Dabhi (Old Dominion University) and Faryaneh Poursardar (Old Dominion University)*
	Session C2 AI for Smart Cities and Environment **Session Chair:**
IRI-27(15 min)	**Integrating Water Data to Empower Alaska's Rural Communities** *Rachel Lewis (University of Alaska Fairbanks), Noah Tsigonis (Arctic Outlook), and Arghya Kusum Das (University of Alaska Fairbanks)*
IRI-85(15min)	**Physics-Informed Deep Learning with GLCM-Integrated Loss for Building Damage Assessment Using Remote Sensing** *Brennan Miller (Christopher Newport University), Abdul Anouti (Christopher Newport University), and Yan Lu (Christopher Newport University)*
IRI-5 (15 min)	**Hierarchical ML for Adversarial Resiliency in Autonomous Vehicular Traffic Sign Recognition** *Khanh Linh Nguyen (University of the Pacific), Abishek Vijjeswarapu (University of the Pacific), Tapadhir Das (University of the Pacific,) and Houman Habibkhani (University of the Pacific)*
IRI-52 (10 min)	**Design and Development of an Intelligent Search and Rescue System with Advanced Noise Reduction and Robust Localization** *Sungbin Im (Soongsil University), Jungyu Choi (Soongsil University), and Joonhwi Kim (Soongsil University)*

8:20 – 9:30	Awards (General Chairs, PC Chairs)
	Keynote 3: "Advancing Beyond LLM Limitations Through Adaptive Multi-Modal Multi-Agent Systems" *by Edward Y. Chang (Stanford University)* **Session Chair**:
9:30 - 9:45	Coffee Break
9:45 – 10:45	Tutorial by: Balaji Palanisamy (University of Pittsburg) Title: **Decentralized Protection and Delivery of Private Information using Smart Contracts**
10:45-11:45	Session D
	Session D1 AI in Health application **Session Chair:**
IRI-39 (15 min)	**Toward Affordable and Non-Invasive Detection of Hypoglycemia: A Machine Learning Approach** *Lawrence Obiuwevwi (Old Dominion University), Krzysztof Rechowicz (Old Dominion University), Vikas Ashok (Old Dominion University), and Sampath Jayarathna (Old Dominion University)*
IRI-41 (15min)	**LLM-based Prompt Ensemble for Reliable Medical Entity Recognition from EHRs** *K M Sajjadul Islam (Marquette University), Ayesha Siddika Nipu (University of Wisconsin-Milwaukee), Jiawei Wu (Medical College of Wisconsin), and Praveen Madiraju (Marquette University)*
IRI-29 (10 min)	**Tuned4You: a Machine Learning-Based Music Scoring Tool Using Health Data** *Nevzat Demirseren (University of North Florida) and Sandeep Reddivari (University of North Florida)*
IRI-55 (10 min)	**Risk Factor Prediction of Chronic Kidney Disease** *Dileep Kumar (SUNY Oswego) and Xiaoliang Wang (SUNY Oswego)*
	Session D2 Federated Learning **Session Chair:**
IRI-79 (15 min)	**AndroIDS : Android-based Intrusion Detection System using Federated Learning** *Akarsh K Nair (Indian Institute of Information technology), Shanik Hubert Satheesh Kumar (IIIT Kottayam), and Deepti Gupta (Texas A&M University-Central Texas)*
IRI-38(15min)	**Efficient Federated Learning Convergence with Epoch Adaptation** *Huy-Hieu Nguyen (Hanoi University of Civil Engineering), Nam-Thang Hoang (Hanoi University of Civil Engineering), Hai-Anh Tran (Hanoi University of Science and Technology), Tulika Mandal (Pennsylvania State University), Ruthvik Annareddy (Pennsylvania State University), Prithvi Choudhary (Pennsylvania State University), and Truong Tran (Pennsylvania State University).*
IRI-10 (15 min)	**Securing Federated Learning against Backdoor Threats with Foundation Model Integration** *Xiaohuan Bi (Renmin University of China) and Xi Li (University of Alabama at Birmingham*

IRI-81 (15 min)	**SecureFed: A Two-Phase Framework for Detecting Malicious Clients in Federated Learning** *Likhitha Annapurna Kavuri (Texas A&M University-Central Texas), Akshay Mhatre (Texas A&M University-Central Texas), Akarsh K Nair (Indian Institute of Information Technology), and Deepti Gupta (Texas A&M University-Central Texas)*
11:30-13:00	**Lunch break**
13:00-14:00	**Keynote 4: "We Are (Still!) Not Giving Data Enough Credit"** *by Alexei (Alyosha) Efros (University of California, Berkeley)* **Session Chair**: Dinesh Manocha
14:00 – 14:15	**Break**
14:15-16:00	**Session E**
	Session E1 Computer Vision **Session Chair:**
IRI-77 (15 min)	**Self-Rectification Faster R-CNN: Enhancing Object Detection in Complex-Background Aerial Images** *Yang Zhang (University of Missouri), Yuan Feng (University of Missouri), and Yi Shang (University of Missouri)*
IRI-70 (15 min)	**dCrack: Enhancing Fine-Grained Crack Segmentation with Edge-Guided Attention** *Akm Shahariar Azad Rabby (University of Alabama at Birmingham) and Chengcui Zhang (University of Alabama at Birmingham)*
IRI-68 (15 min)	**P-KESS: A Prior-Knowledge Enforced Semantic Segmentation Pipeline for UAV Imagery River Habitat Segmentation** *Zhenduo Zhai (University of Missouri), Zhiguang Liu (University of Missouri), Shiqi Wang (University of Missouri), and Yi Shang (University of Missouri)*
IRI-13 (10 min)	**Text Coherence based Test-Time Adaptation for Collaborative Robot Segmentation**
	Session E2 **Security** **Session Chair:**
IRI-7 (15 min)	**Spatiotemporal DeepFake Video Detection: A Hybrid CNN-Transformer Approach with Frequency Analysis** *Naciye Celebi (Sam Houston State University) and Qingzhong Liu (Sam Houston State University)*
IRI-83 (15 min)	**The Impact of Class Imbalance on Unsupervised Deep Anomaly Detection for Cognitive Data** *Zahra Salekshahrezaee (Florida Atlantic University) and Taghi Khoshgoftaar (Florida Atlantic University).*
IRI-19 (15 min)	**Connecting the Dots: An Integrated Vulnerability Knowledge Graph for Security Practitioners** *Brittany Boles (Montana State University), Clemente Izurieta (Montana State University, Pacific Northwest National Laboratory, Idaho National Laboratory), and Ann Marie Reinhold (Montana State University, Pacific Northwest National Laboratory).*

IRI-30 (10 min)	**PeerGuard: Defending Multi-Agent Systems Against Backdoor Attacks Through Mutual Reasoning** *Falong Fan (The Chinese University of Hong Kong) and Xi Li (University of Alabama at Birmingham).*
16:00-16:15	**Break**
16:15-18:00	**Session F1** **EM-RITE Workshop** **Chair: Min-Yuh Day**
EMRITE-3 (15min)	**Trust-Guided Multi-Agent LLM Risk Classification in Safety-Critical Dialogues** *Jun-Yu Wu and Min-Yuh Day*
EMRITE-4 (15min)	**Formosan Language Morphological Analyzer** *Chuan-Jie Lin, Li-May Sung, Chun-Kai Yang, and Bo-Yi Jin*
EMERITE-6 (15min)	**Fine-tuned Models for Hate Speech Detection: Assessing Generalization on Social Media** *Shih-Hung Wu and Tsung-Hsun Tsai*
EMERITE-7 (15min)	**Explainable Patterns of LLM Funding Behaviour in Startup Funding Decision** *Duang-kamol Buranasomphop*
EMRITE-8 (15min)	**From Silence to Voice: Using Personalized AI Language Models to Improve Quality of Life for People with Speech Impediments** *Yu-An Lin, Yue-Shan Chang, Chao-Yin Lin, Chen-Yu Chiang, and Min-Yuh Day*
	Session F2 **Artificial Intelligence for HealthCare (AIHC) Workshop** **Session Chair: Lydia Bouzar-Benlabiod / Andrew McIntyre**
AIHC-3676 (15 min)	**LLM-based Agents for Automated Confounder Discovery and Subgroup Analysis in Causal Inference** *Po-Han Lee, Yu-Cheng Lin, Chantung Ku, Chan Hsu, Pei-Cing Huang, Pinghsung Wu, and Yihuang Kang (National Sun Yat-Sen University).*
AIHC-4057 (15 min)	**Quality Assessment of Embryo Development Based on EM-aided Collaborative Learning** *Jung-Hua Wang (AI Research Center, National Taiwan Ocean University), Chang-Hong Wu (Department of Electrical Engineering, National Taiwan Ocean University), Ming-Jer Chen (Department of Obstetrics, Gynecology and Women's Health, Taichung Veterans General Hospital), Yu-Chiao Yi (Department of Obstetrics, Gynecology and Women's Health Taichung Veterans General Hospital Taichung), Huai-Wen Chang (Department of Electrical Engineering, National Taiwan Ocean University), and Rong-Yu Wu (Department of Electrical Engineering, National Taiwan Ocean University)*
AIHC-4424 (15 min)	**Towards Interpretable Renal Health Decline Forecasting via Multi-LMM Collaborative Reasoning Framework** *Peng-Yi Wu (Department of Information Management, National Sun Yat-Sen University), Pei-Cing Huang (Department of Information Management, National Sun Yat-Sen University), Ting-Yu Chen (Department of Information Management, National Sun Yat-Sen University), Chantung Ku (Department of Information Management, National Sun Yat-Sen University), Ming-Yen Lin (Kaohsiung Medical University Hospital, Kaohsiung Medical University), and Yihuang Kang (Department of Information Management, National Sun Yat-Sen University).*

AIHC-4701 (15 min)	**Integrating Interpretability into Deep Learning Models for Mammogram-Based Breast Cancer Detection** *Joy Ndirangu (Acadia University) and Lydia Bouzar-Benlabiod (Acadia University).*
AIHC-5897 (15 min)	**Longitudinal Analysis of Diabetes-Respiratory Distress Connections in Multimodal QBB Data Using Artificial Intelligence** *Sulaiman Khan (College of Science and Engineering, Hamad Bin Khalifa University, Qatar Foundation) and Zubair Shah (College of Science and Engineering, Hamad Bin Khalifa University, Qatar Foundation).*
AIHC-8981 (15min)	**Unsupervised Cognitive Impairment Detection Using Convolutional Autoencoders and Isolation Forest** *Zahra Salekshahrezaee (Florida Atlantic University) and Taghi Khoshgoftaar (Florida Atlantic University).*
AIHC-9863 (15min)	**A New and Effective Technique for Unsupervised Labeling and Feature Selection with Applications in Healthcare Fraud Detection** *John Hancock (Florida Atlantic University), Robert Kennedy (Florida Atlantic University), Mary Walauskis (Florida Atlantic University), and Taghi Khoshgoftaar (Florida Atlantic University)*
7:00 - 9:00 pm	**Banquet**

8:20 - 9:30	**Keynote 5: "The Future of Discovery Assistance"** *by Ed H. Chi* (*Google DeepMind*) **Session Chair:** Shu-Ching Chen
9:30 - 9:45	**Coffee break**
9:45 – 11:30	**Session G**
	Session G1 AI for Society **Session Chair:**
IRI-25 (15 min)	**Towards Simulating Social Influence Dynamics with LLM-based Multi-agents** *Hsien-Tsung Lin (National Sun Yat-Sen University), Pei-Cing Huang (National Sun Yat-Sen University), Chan-Tung Ku (National Sun Yat-Sen University), Chan Hsu (National Sun Yat-Sen University), Pei-Xuan Shieh (National Sun Yat-Sen University), and Yihuang Kang (National Sun Yat-Sen University)*
IRI-17 (15 min)	**MultiRAG: A Fuzzy Logic-Driven Multi-Granularity Framework for Legal Document Generation** *Parag Tamhankar (Georgia State University), Nishchay Patel (Georgia State University), and Manish Kolla (Georgia State University).*
IRI-33(15min)	**Benchmarking Transformer and Sequence Models for UWB Indoor Localization** *Somayeh Modaberi (University of Calgary)*
IRI-97 (15 min)	**A ChatGPT-Powered Tool for Automating Context-Aware Acceptance Criteria Generation for User Stories** *Jessica Rawson (University of North Florida) and Sandeep Reddivari (University of North Florida)*
	Session G2 DL applications **Session Chair:**
IRI-43 (15min)	**zSHiFT: A Siamese Hierarchical Transformer Network for Zero Shot Time Series Forecasting** *Harrison Thayer (California State University, Fullerton) and Anand Panangadan (California State University, Fullerton)*
IRI-36 (15min)	**Beyond Gaze Overlap: Analyzing Joint Visual Attention Dynamics Using Egocentric Data** *Kumushini Thennakoon (Old Dominion University), Yasasi Abeysinghe (Old Dominion University), Bhanuka Mahanama (Old Dominion University), Vikas Ashok (Old Dominion University), and Sampath Jayarathna (Old Dominion University)*
IRI-26 (15min)	**Unsupervised Domain-Adaptation for Appearance-based Gaze Estimation** *Bhanuka Mahanama (Old Dominion University), Vikas Ashok (Old Dominion University), and Sampath Jayarathna (Old Dominion University).*
IRI-74 (15min)	**Database Entity Recognition with Data Augmentation and Deep Learning** *Zikun Fu (OntarioTech University), Chen Yang (Northeastern University), Heidar Davoudi (OntarioTech University), and Ken Pu (OntarioTech University)*

11:30-13:00	**Lunch Break**
13:00-14:00	**Keynote 6: "Can Computers Create Art?"** *by Aaron Hertzmann (Adobe Research)* **Session Chair:** Dae Yeol Lee
14:00-14:15	**Break**
– 14:15-16:00	**Session H**

	Session H1 NLP and AI-assistants **Session Chairs:**
IRI-100 (15min)	**Fusion-based Clustering with Interaction Rate for Imbalanced and Chained Structures** *Mohammed Ouali (Adrian College), Gherbaoui Radhwane (Universite de Chlef), and Nacera Benamrane (Universite des Sciences et Technologies)*
IRI-73 (15min)	**Design and Development of a Real-Time Camera-based Smart Cooking Assistant** *Hammad Sheikh (California State University, Fullerton), Kiran George (California State University, Fullerton), Tabashir Nobari (California State University, Fullerton), and Anand Panangadan (California State University, Fullerton)*
IRI-37 (15min)	**Quantitative Evaluation of AI-generated Recipes for Health Recommender Systems** *Divya Tanwar (California State University, Fullerton), Tabashir Nobari (California State University, Fullerton), Pia Chaparro (University of Washington), and Anand Panangadan (California State University, Fullerton)*
IRI-15 (15min)	**Integrating Computational Text Analysis into Risk and Crisis Communication Development** *Madison Munro (Montana State University), Manuel Ruiz-Aravena (Mississippi State University), Elizabeth Shanahan (Montana State University), Savanna Washburn (Montana State University), and Ann Marie Reinhold (Montana State University)*