

# **2024 International Conference on Machine Learning and Applications (ICMLA 2024)**

**Miami, Florida, USA  
18-20 December 2024**

**Pages 1-643**



**IEEE Catalog Number: CFP24592-POD  
ISBN: 979-8-3503-7489-6**

**Copyright © 2024 by the Institute of Electrical and Electronics Engineers, Inc.  
All Rights Reserved**

*Copyright and Reprint Permissions:* Abstracting is permitted with credit to the source. Libraries are permitted to photocopy beyond the limit of U.S. copyright law for private use of patrons those articles in this volume that carry a code at the bottom of the first page, provided the per-copy fee indicated in the code is paid through Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923.

For other copying, reprint or republication permission, write to IEEE Copyrights Manager, IEEE Service Center, 445 Hoes Lane, Piscataway, NJ 08854. All rights reserved.

***\*\*\* This is a print representation of what appears in the IEEE Digital Library. Some format issues inherent in the e-media version may also appear in this print version.***

IEEE Catalog Number:	CFP24592-POD
ISBN (Print-On-Demand):	979-8-3503-7489-6
ISBN (Online):	979-8-3503-7488-9
ISSN:	1946-0740

**Additional Copies of This Publication Are Available From:**

Curran Associates, Inc  
57 Morehouse Lane  
Red Hook, NY 12571 USA  
Phone: (845) 758-0400  
Fax: (845) 758-2633  
E-mail: [curran@proceedings.com](mailto:curran@proceedings.com)  
Web: [www.proceedings.com](http://www.proceedings.com)

CURRAN ASSOCIATES INC.  
**proceedings**  
.com

# 2024 International Conference on Machine Learning and Applications (ICMLA) ICMLA 2024

## Table of Contents

Preface .....	xxxix
Keynotes .....	xli

### MC1: Main Conference (In Person, Regular Papers)

Concurrent Learning of Bayesian Agents with Deep Reinforcement Learning for Operational Planning .....	1
<i>T. Scott Brandes (BAE Systems, FAST Labs), Letitia Li (BAE Systems, FAST Labs), Daniel Clymer (BAE Systems, FAST Labs), Eric Blair (BAE Systems, FAST Labs), Michael Miller (BAE Systems, FAST Labs), and Marco Pravia (BAE Systems, FAST Labs)</i>	
Learning from Uncertainty: Improving Churn Prediction using Conformal Confidence Intervals .....	9
<i>Yameng Guo (Ghent University, Belgium) and Seppe Vanden Broucke (Ghent University, Belgium; KU Leuven, Belgium)</i>	
Domain Adaptation Utilizing Texts and Visions for Cross-Domain Recommendations with No Shared Users .....	17
<i>Kentaro Shiga (Osaka University, Japan), Shuichiro Haruta (Human-Centered AI Laboratories, KDDI Research, Inc., Japan), Zhi Li (Osaka University, Japan), and Takahiro Hara (Osaka University, Japan)</i>	
Multi-Layer Attention-Based Explainability via Transformers for Tabular Data .....	25
<i>Andrea Treviño Gavito (Northwestern University, USA), Diego Klabjan (Northwestern University, USA), and Jean Utke (Allstate Insurance Company, USA)</i>	
MultiLangMemeNet: A Unified Multimodal Approach for Cross-Lingual Meme Sentiment Analysis ...	33
<i>Md. Kishor Morol (Cornell University, USA; St. Thomas University, USA; EliteLab.AI), Shakib Sadat Shanto (American International University-Bangladesh (AIUB), Bangladesh; EliteLab.AI), Zishan Ahmed (American International University-Bangladesh (AIUB), Bangladesh; EliteLab.AI), and Ahmed Shakib Reza (BRAC University (BRACU), Bangladesh; EliteLab.AI)</i>	

Leveraging A* Pathfinding for Efficient Deep Reinforcement Learning in Obstacle-Dense Environments .....	41
<i>Junior Samuel Lopez Yopez (Thales Digital Solutions, Canada), Antoine Fagette (Thales Digital Solutions, Canada), Charles Dansereau (Thales Digital Solutions, Canada), and Filipe Carvalhais Sanches (Thales Digital Solutions, Canada)</i>	
Squeeze-and-Remember Block .....	47
<i>Rinor Cakaj (University of Stuttgart, Germany), Jens Mehnert (Signal Processing, Robert Bosch GmbH, Germany), and Bin Yang (University of Stuttgart, Germany)</i>	
Detection of Behavioral Health Challenges in High School Students .....	55
<i>Thiru Radhakrishnan (University of Illinois Chicago, Illinois), Emilio Ingenito (University of Illinois Chicago, Illinois), Ugo Buy (University of Illinois Chicago, Illinois), Sr. M. Pieta Keller (OSF Healthcare, Illinois), and Kyle W. Boerke (OSF Healthcare, Illinois)</i>	
Enhancing High-Frequency Trading with Deep Reinforcement Learning using Advanced Positional Awareness Under a Directional Changes Paradigm .....	63
<i>George Rayment (University of Essex, United Kingdom) and Michael Kampouridis (University of Essex, United Kingdom)</i>	
Deep Neural Networks for Comprehensive Environmental Noise Estimation in European Cities .....	71
<i>Jivitesh Sharma (Norwegian Institute for Air Research), Stefan Jetschny (Universitat Autònoma de Barcelona), Miquel Sáinz De la Maza Marsal (Universitat Autònoma de Barcelona), Nuria Blanes Guardia (Universitat Autònoma de Barcelona), Eulalia Peris (European Environment Agency (EEA)), Jaume Fons Esteve (Universitat Autònoma de Barcelona), and Mohamed-Bachir Belaid (Norwegian Institute for Air Research)</i>	
A Machine Learning Approach for Identifying HLA Variants Associated with Symptomatic and Asymptomatic COVID-19 .....	79
<i>Atul Rawal (Hemostatis Branch, Division of Plasma Protein Therapeutics, Center for Biologics Evaluation &amp; Reserach, Food and Drug Administration, USA), Rayan Jawa (Hemostatis Branch, Division of Plasma Protein Therapeutics, Center for Biologics Evaluation &amp; Reserach, Food and Drug Administration, USA), and Zuben Sauna (Hemostatis Branch, Division of Plasma Protein Therapeutics, Center for Biologics Evaluation &amp; Reserach, Food and Drug Administration, USA)</i>	
iTRACE: In-Depth Trends and Root Cause Analysis of Canadian Public Service Employee Survey ...	85
<i>Ashkan Ebadi (Digital Technologies Research Centre, National Research Council Canada, Canada)</i>	
A Global-Local Probsparse Self-Attention Transformer for LEO Satellite Orbit Prediction .....	91
<i>Guan Huang (Auburn University, USA) and Tao Shu (Auburn University, USA)</i>	
ProtoGMM: Multi-Prototype Gaussian-Mixture-Based Domain Adaptation Model for Semantic Segmentation .....	99
<i>Nazanin Moradinasab (University of Virginia, USA), Laura Shankman (University of Virginia, USA), Rebecca Deaton (University of Virginia, USA), Gary Owens (University of Virginia, USA), and Donald Brown (University of Virginia, USA)</i>	

Capturing Uncertainty Over Time for Spiking Neural Networks by Exploiting Conformal Prediction Sets .....	107
<i>Daniel Scholz (Infineon Technologies Dresden, Germany), Oliver Emonds (Technical University of Munich, Germany), Felix Kreutz (Infineon Technologies Dresden, Germany), Pascal Gerhards (Infineon Technologies Dresden, Germany), Jiaxin Huang (Infineon Technologies Dresden, Germany), Klaus Knobloch (Infineon Technologies Dresden, Germany), Alois Knoll (Technical University of Munich, Germany), and Christian Mayr (Technische Universität Dresden, Germany)</i>	
Spatial Transformer Network YOLO Model for Agricultural Object Detection .....	115
<i>Yash Vivek Zambre (Texas A&amp;M University, USA), Ekdev Rajkitkul (Texas A&amp;M University, USA), Akshatha Mohan (Texas A&amp;M University, USA), and Joshua Peeples (Texas A&amp;M University, USA)</i>	
Wave-Based Neural Network with Attention Mechanism for Damage Localization in Materials ....	122
<i>Fatahlla Moreh (Kiel University, Germany), Yusuf Hasan (Aligarh Muslim University, India), Zarghaam Haider Rizvi (University of Waterloo, Canada), Frank Wuttke (Kiel University, Germany), and Sven Tomforde (Kiel University, Germany)</i>	
Enhancing EEG Motor Imagery Time Point Signal Classification Through Reinforcement Learning and Graph Neural Networks .....	130
<i>Htoo Wai Aung (University of Technology Sydney, Australia), Jiao Jiao Li (University of Technology Sydney, Australia), Yang An (University of Technology Sydney, Australia), and Steven W. Su (University of Technology Sydney, Australia)</i>	
ReL-SAR: Representation Learning for Skeleton Action Recognition with Convolutional Transformers and BYOL .....	136
<i>Safwen Naimi (University of Québec (TÉLUQ), Canada), Wassim Bouachir (University of Québec (TÉLUQ), Canada), and Guillaume-Alexandre Bilodeau (LITIV lab., Polytechnique Montréal, Canada)</i>	
Graph Integration for Diffusion-Based Manifold Alignment .....	144
<i>Jake S. Rhodes (Brigham Young University, USA) and Adam G. Rustad (Brigham Young University, USA)</i>	
On the Performance and Robustness of Linear Model U-Trees in Mimic Learning .....	152
<i>Matthew Green (Johns Hopkins University, Baltimore, MD) and John W. Sheppard (Montana State University, Bozeman, MT)</i>	
Leveraging Machine Learning Models to Predict the Outcome of Digital Medical Triage Interviews .....	160
<i>Sofia Krylova (Platform24 AB, Sweden; School of Electrical Engineering and Computer Science, KTH Royal Institute of Technology, Sweden), Fabian Schmidt (School of Electrical Engineering and Computer Science, KTH Royal Institute of Technology, Sweden), and Vladimir Vlassov (School of Electrical Engineering and Computer Science, KTH Royal Institute of Technology, Sweden)</i>	
Learning-Based Attitude Estimation with Noisy Measurements and Unknown Gyro Bias .....	168
<i>Parham Oveissi (University of Maryland, Baltimore, MD), Mohammad Mirtaba (University of Maryland, Baltimore, MD), and Ankit Goel (University of Maryland, Baltimore, MD)</i>	

LLM for Generating Simulation Inputs to Evaluate Path Planning Algorithms .....	176
<i>Chenyang Wang (Colorado School of Mines, USA), Jonathan Diller (Colorado School of Mines, USA), and Qi Han (Colorado School of Mines, USA)</i>	
Unsupervised Anomaly Detection in Urban Water Networks Using a Hierarchical Deep Learning Model .....	182
<i>Guillem Escribà (Universitat Pompeu Fabra, Spain), David Pérez (Universitat Pompeu Fabra, Spain), Nicolás Vila (Universitat Pompeu Fabra, Spain), Daniel Marín (Universitat Pompeu Fabra, Spain), and Miquel Oliver (Universitat Pompeu Fabra, Spain)</i>	
A3: Active Adversarial Alignment for Source-Free Domain Adaptation .....	190
<i>Chrisantus Eze (Oklahoma State University, USA) and Christopher Crick (Oklahoma State University, USA)</i>	
An Efficient Model-Agnostic Approach for Uncertainty Estimation in Data-Restricted Pedometric Applications .....	198
<i>Viacheslav Barkov (Osnabrück University, Germany; Department of Agromechatronics, Leibniz Institute for Agricultural Engineering and Bioeconomy, Germany), Jonas Schmidinger (Osnabrück University, Germany; Department of Agromechatronics, Leibniz Institute for Agricultural Engineering and Bioeconomy, Germany), Robin Gebbers (Department of Agromechatronics, Leibniz Institute for Agricultural Engineering and Bioeconomy, Germany), and Martin Atzmueller (Osnabrück University, Germany; German Research Center for Artificial Intelligence (DFKI), Germany)</i>	
Qualitative Diagnosis of LLMs as Judges using LevelEval .....	206
<i>Mallika Boyapati (Kennesaw State University, USA), Lokesh Meesala (Kennesaw State University, USA), Ramazan Aygun (Kennesaw State University, USA), Bill Franks (Kennesaw State University, USA), Hansook Choi (The Travelers Companies, Inc., USA), Sereres Riordan (The Travelers Companies, Inc., USA), and Girish Modgil (The Travelers Companies, Inc., USA)</i>	
Learnable Deep Wavelet Packet Transform for Speech Emotion Recognition in High-Risk Suicide Calls .....	214
<i>Alaa Nfissi (University of Québec (TÉLUQ), Canada; Concordia University, Canada; Centre for Research and Intervention on Suicide, Ethical Issues and End-of-Life Practices, Canada), Wassim Bouachir (University of Québec (TÉLUQ), Canada; Centre for Research and Intervention on Suicide, Ethical Issues and End-of-Life Practices, Canada), Nizar Bouguila (Concordia University, Canada), and Brian Mishara (University of Québec, Canada; Centre for Research and Intervention on Suicide, Ethical Issues and End-of-Life Practices, Canada)</i>	
Adarmer: An Adaptive Transformer for Direct Normal Irradiance Forecasting .....	222
<i>Muhammad Saud Ul Hassan (Rice University, USA), Kashif Liaqat (Rice University, USA), and Laura Schaefer (Rice University, USA)</i>	
Intelligent Fall Detection and Emergency Response for Smart Homes Using Language Models .....	230
<i>Malithi Mithsara Wanniarachchi Kankanamge (Southern Illinois University, USA), Abdur Rahman Bin Shahid (Southern Illinois University, USA), and Ning Yang (Southern Illinois University, USA)</i>	

Deep Learning Based Inverse Modeling for Materials Design: From Microstructure and Property to Processing .....	236
<i>Kewei Wang (Northwestern University, USA), Yuwei Mao (Northwestern University, USA), Mahmudul Hasan (Virginia Tech, USA), Md Maruf Billah (Virginia Tech, USA), Muhammed Nur Talha Kilic (Northwestern University, USA), Vishu Gupta (Northwestern University, USA), Wei-keng Liao (Northwestern University, USA), Alok Choudhary (Northwestern University, USA), Pinar Acar (Virginia Tech, USA), and Ankit Agrawal (Northwestern University, USA)</i>	
Natural Adversarial Attacks .....	242
<i>Michael Hughes (University of Liverpool, UK) and Sven Schewe (University of Liverpool, UK)</i>	
Diffusion Equation Based Subspace Extraction of Image Data for Fast K-Means .....	250
<i>Bingcheng Li (Lockheed Martin Corporation, NY)</i>	
Developing the Temporal Graph Convolutional Neural Network Model to Predict Hip Replacement using Electronic Health Records .....	256
<i>Zoe Hancox (University of Leeds, United Kingdom), Sarah R Kingsbury (University of Leeds, United Kingdom), Andrew Clegg (Bradford Institute for Health Research, United Kingdom), Philip G Conaghan (University of Leeds, United Kingdom), and Samuel D Relton (University of Leeds, United Kingdom)</i>	
New Class Labeling and Evaluation Methodology for Balanced and Highly Imbalanced Data .....	264
<i>Mary Anne Walauskis (Florida Atlantic University) and Taghi M. Khoshgoftaar (Florida Atlantic University)</i>	
Oracle Embeddings for Chemical Detection .....	272
<i>Cate Dunham (Data Science, WPI, USA), Maria Barger (Data Science, WPI, USA), Randy Paffenroth (Mathematical Sciences Computer Science, and Data Science, WPI, USA), Joshua Uzarski (Research Chemist, US Army, DEVCOM Soldier Center, Soldier Protection Division, US), and Chia-Wei Tsai (Interdisciplinary Physical Scientist, CIV DTRA RD, USA)</i>	
Towards Physically Consistent Deep Learning For Climate Model Parameterizations .....	280
<i>Birgit Kühbacher (Deutsches Zentrum für Luft- und Raumfahrt (DLR), Institut für Physik der Atmosphäre, Germany; Technical University of Munich, Germany; Helmholtz Munich, Germany), Fernando Iglesias-Suarez (Deutsches Zentrum für Luft- und Raumfahrt (DLR), Institut für Physik der Atmosphäre, Germany), Niki Kilbertus (Technical University of Munich, Germany; Helmholtz Munich, Germany; Munich Center for Machine Learning (MCML), Germany), and Veronika Eyring (Deutsches Zentrum für Luft- und Raumfahrt (DLR), Institut für Physik der Atmosphäre, Germany; Technical University of Munich, Germany; University of Bremen, Germany)</i>	
On Contrastive Learning for Domain Generalization .....	288
<i>Thuan Nguyen (East Tennessee State University, TN) and D. Richard Brown (Worcester Polytechnic Institute, MA)</i>	
Reinforcement Learning as an Improvement Heuristic for Real-World Production Scheduling .....	296
<i>Arthur Müller (Department of Machine Intelligence, Fraunhofer IOSB-INA, Germany) and Lukas Vollenkemper (Bielefeld University of Applied Sciences and Arts, Germany)</i>	

An Evaluation of Low-Shot Learning Techniques for the Detection of Credit Card Fraud .....	304
<i>Preston Billion-Polak (Florida Atlantic University) and Taghi M. Khoshgoftaar (Florida Atlantic University)</i>	
Learning Interpretable Policies in Hindsight-Observable POMDPs Through Partially Supervised Reinforcement Learning .....	312
<i>Michael Lanier (Washington University, USA), Ying Xu (Washington University, USA), Nathan Jacobs (Washington University, USA), Chongjie Zhang (Washington University, USA), and Yevgeniy Vorobeychik (Washington University, USA)</i>	
Multimodal Fusion Networks for Workload Modeling .....	320
<i>Shengnan Hu (Central China Normal University, China) and Gita Sukthankar (University of Central Florida, USA)</i>	
Matrix-Based Representations and Gradient-Free Algorithms for Neural Network Training .....	325
<i>Turibius Rozario (University of Maryland, Baltimore, MD), Parham Oveissi (University of Maryland, Baltimore, MD), and Ankit Goel (University of Maryland, Baltimore, MD)</i>	
Hierarchical Representation for Multi-Source Domain Adaptation via Wasserstein Barycenter .....	333
<i>Mourad El Hamri (Université Paris Cité, France), Issam Falih (Université Clermont-Auvergne, France), and Yves Rozenholc (Université Paris Cité, France)</i>	
GADLE: A Robust Alternative to Reinforcement Learning for Systematic Investment .....	339
<i>Prasang Gupta (Innovation Hub, PwC US, India), Prajjwal Gupta (Innovation Hub, PwC US, India), Shaz Hoda (Innovation Hub, PwC US, USA), and Anand Rao (Carnegie Mellon University, USA)</i>	
Data-Driven Graph Construction of Power Flow Graphs for Electric Power Transmission Networks .....	346
<i>Benjamin Poole (University of North Carolina at Charlotte, USA), Rajan Ratnakumar (n/a), Dulip Tharaka Madurasinghe (Clemson University, USA), Christian Kümmerle (University of North Carolina at Charlotte, USA; Clemson University, USA), Ganesh Kumar Venayagamoorthy (Clemson University, USA; University of Pretoria, South Africa), and Minwoo Lee (University of North Carolina at Charlotte, USA)</i>	
Multi-Margin Cosine Loss: Proposal and Application in Recommender Systems .....	354
<i>Makbule Gulcin Ozsoy (Independent Researcher, UK)</i>	
Let's Federate - Effective Communication Strategy for Dynamic Client Participation .....	361
<i>Rafael de O. Jarczewski (University of Campinas), Eduardo Cerqueira (Federal University of Pará), Luiz F. Bittencourt (University of Campinas), Antonio A. F. Loureiro (Federal University of Minas Gerais), Leandro A. Villas (University of Campinas), and Allan M. de Souza (University of Campinas)</i>	
Enhancing Multivariate Time Series-Based Solar Flare Prediction with Multifaceted Preprocessing and Contrastive Learning .....	369
<i>MohammadReza EskandariNasab (Utah State University, USA), Shah Muhammad Hamdi (Utah State University, USA), and Soukaina Filali Boubrahimi (Utah State University, USA)</i>	
Temporal Dynamics of Classroom Stress: Insights from Wearable Sensors and Machine Learning...	377
<i>Latherial Calbert (College of Charleston, USA) and Navid Hashemi Tonekaboni (College of Charleston, USA)</i>	



Effectively Prompting Small-Sized Language Models for Cross-Lingual Tasks via Winning Tickets .....	385
<i>Mingqi Li (Clemson University, USA) and Feng Luo (Clemson University, USA)</i>	
SAFARI: Self-Regulated Clustered Federated Learning in a Heterogeneous Environment .....	394
<i>Sai Puppala (Southern Illinois University), Ismail Hossian (University of Texas), Md Jahangir Alam (University of Texas), and Sajedul Talukder (University of Texas)</i>	
Learning Extended Forecasts of Soil Water Content via Physically-Inspired Autoregressive Models .....	400
<i>Ozmen Erkin Kokten (Oregon State University, OR), Raviv Raich (Oregon State University, OR), James Holmes (Ciel du Cheval Vineyard, WA), and Alan Fern (Oregon State University, OR)</i>	
YOLO-SCSA: Enhanced YOLOv8 with Spatially Coordinated Shuffling Attention Mechanisms for Skin Cancer Detection .....	408
<i>Jinyoon Kim (Pennsylvania State University Harrisburg, USA), Tianjie Chen (New Mexico State University, USA), Hien Nguyen (Pennsylvania State University Harrisburg, USA), and Md Faisal Kabir (Pennsylvania State University Harrisburg, USA)</i>	
Hypergraph Contrastive Learning with Graph Structure Learning for Recommendation .....	416
<i>Yuma Dose (Osaka University, Japan), Shuichiro Haruta (Human-Centered AI Laboratories, KDDI Research, Inc., Japan), Yihong Zhang (Osaka University, Japan), and Takahiro Hara (Osaka University, Japan)</i>	
FastMapSVM/FastMapSVR for Predictive Tasks on CSPs, SAT, and Weighted CSPs .....	424
<i>Kexin Zheng (University of Southern California, USA), Ang Li (University of Southern California, USA), and T. K. Satish Kumar (University of Southern California, USA)</i>	
Exploring Multi-Label Data Augmentation for LLM Fine-Tuning and Inference in Requirements Engineering: A Study with Domain Expert Evaluation .....	432
<i>Hanyue Liu (National University of Singapore, Singapore), Marina Bueno García (Volvo Cars, Sweden), and Nikolaos Korkakakis (Volvo Cars, Sweden)</i>	
Identifying Hierarchical Community Structures in Content-Based Scholarly Social Networks .....	440
<i>Md Asaduzzaman Noor (Montana State University, USA), John Sheppard (Montana State University, USA), and Jason Clark (Montana State University, USA)</i>	
Whitening Consistently Improves Self-Supervised Learning .....	448
<i>András Kalapos (Budapest University of Technology and Economics, Hungary) and Bálint Gyires-Tóth (Budapest University of Technology and Economics, Hungary)</i>	
FL-EGM: Decentralized Federated Learning using Aggregator Selection with Enhanced Global Model .....	454
<i>Muhammad Kaleem Ullah Khan (Department of Software Engineering and IT, École de technologie supérieure ÉTS, Canada), Kaiwen Zhang (Department of Software Engineering and IT, École de technologie supérieure ÉTS, Canada), and Chamseddine Talhi (Department of Software Engineering and IT, École de technologie supérieure ÉTS, Canada)</i>	

Enhancing Allergy Prediction Accuracy through Machine Learning and ProteinBERT .....	462
<i>Agastya Chennamsetty (John Jay Senior Highschool, USA) and Atul Dubey (AIClub Research Institute, USA)</i>	
Comparative Analysis of Inference Performance of Pre-Trained Deep Neural Networks in Analog Accelerators .....	468
<i>Mafizur Rahman (Prairie View A&amp;M University, USA), Lin Li (Prairie View A&amp;M University, USA), Lijun Qian (Prairie View A&amp;M University, USA), and Max Huang (The University of Texas, USA)</i>	
Evaluation of Few-Shot Learning Algorithms, Training Methods, Backbones and Learning Task for Crack Detection in Manufacturing .....	476
<i>Dharmil Rajesh Mehta (Fraunhofer Institute for Industrial Engineering IAO, Germany), Safa Omri (Fraunhofer Institute for Industrial Engineering IAO, Germany), Niclas Renner (Fraunhofer Institute for Industrial Engineering IAO, Germany), Kristian Schaeffer (Fraunhofer Institute for Industrial Engineering IAO, Germany), Jens Neuhüttler (Fraunhofer Institute for Industrial Engineering IAO, Germany), and Johannes Schniertshauer (AUDI AG)</i>	
Towards a Feasible Palm Vein Verification Scheme Using Deep Autoencoder and Siamese Networks .....	483
<i>Mateus Nunes (Pontifical Catholic University of Parana, Brazil), Eduardo Kugler Viegas (Pontifical Catholic University of Parana, Brazil), and Altair Olivo Santin (Pontifical Catholic University of Parana, Brazil)</i>	
Time Series Classification of Supraglacial Lakes Evolution over Greenland Ice Sheet .....	490
<i>Emam Hossain (University of Maryland, Baltimore County), Md Osman Gani (University of Maryland, Baltimore County), Devon Dunmire (KU Leuven, Belgium), Aneesh Subramanian (University of Colorado, Boulder), and Hammad Younas (St. John's School, USA)</i>	
Hidden Pieces: An Analysis of Linear Probes for GPT Representation Edits .....	498
<i>Austin L. Davis (University of Central Florida, USA) and Gita Sukthankar (University of Central Florida, USA)</i>	
RaceGAN: A Framework for Preserving Individuality While Converting Racial Information for Image-to-Image Translation .....	506
<i>Mst Tasnim Pervin (University of Nevada, USA), George Bebis (University of Nevada, USA), Fang Jiang (University of Nevada, USA), and Alireza Tavakkoli (University of Nevada, USA)</i>	
ECGInsight: A Web Application-Based Approach to Myocardial Infarction Detection From ECG Image Reports Utilizing ResNet .....	514
<i>Jahanggir Hossain Setu (Independent University Bangladesh, Bangladesh), Syed Tangim Pasha (Independent University Bangladesh, Bangladesh), Nabarun Halder (Independent University Bangladesh, Bangladesh), Sankar Sikder (Augusta University, USA), Ashraful Islam (Independent University Bangladesh, Bangladesh), and Md Zahangir Alam (Independent University Bangladesh, Bangladesh)</i>	
Real-Time Human-Classified Emotional MIDI Dataset Integration for Symbolic Music Generation .....	520
<i>Justin Adebayo Kerobo (Virginia Tech, USA) and Ivica Ico Bukvic (Virginia Tech, USA)</i>	

RFOOD: Real-Time Facial Authentication and Out-of-Distribution Detection with Short-Range FMCW Radar .....	528
<i>Sabri Mustafa Kahya (Technical University of Munich), Muhammet Sami Yavuz (Technical University of Munich), Boran Hamdi Sivrikaya (Technical University of Munich), and Eckehard Steinbach (Technical University of Munich)</i>	
Through the Looking Glass: LLM-Based Analysis of AR/VR Android Applications Privacy Policies .....	534
<i>Abdulaziz Alghamdi (University of Central Florida) and David Mohaisen (University of Central Florida)</i>	
Segmentation of Maya Hieroglyphs Through Fine-Tuned Foundation Models .....	540
<i>Fnu Shivam (West Virginia University, USA), Megan Leight (West Virginia University, USA), Mary Kate Kelly (Mount Royal University, Canada), Claire Davis (West Virginia University, USA), Kelsey Clodfelter (West Virginia University, USA), Jacob Thrasher (West Virginia University, USA), Chowdhury Mohammad Abid Rahman (West Virginia University, USA), Yenumula Reddy (West Virginia University, USA), and Prashnna Gyawali (West Virginia University, USA)</i>	
Uncertainty Quantified Deep Learning and Regression Analysis Framework for Image Segmentation of Skin Cancer Lesions .....	546
<i>Elhoucine Elfatimi (University of California, USA) and Pratik Shah (University of California, USA)</i>	
Intelligent Soccer Event Detection and Highlights Generation with Broadcast Cues Integration .....	554
<i>Anirudh Narayanan (Rochester Institute of Technology, USA), Sergei Chuprov (The University of Texas Rio Grande Valley, USA), Leon Reznik (Rochester Institute of Technology, USA), Raman Zatsarenko (Rochester Institute of Technology, USA), and Dmitrii Korobeinikov (Rochester Institute of Technology, USA)</i>	
Leveraging Language Models for Analyzing Longitudinal Experiential Data in Education .....	560
<i>Ahatsham Hayat (University of Nebraska-Lincoln), Bilal Khan (Lehigh University), and Mohammad Hasan (University of Nebraska-Lincoln)</i>	
ChronoGAN: Supervised and Embedded Generative Adversarial Networks for Time Series Generation .....	567
<i>MohammadReza EskandariNasab (Utah State University, USA), Shah Muhammad Hamdi (Utah State University, USA), and Soukaina Filali Boubrahimi (Utah State University, USA)</i>	
SEATTNET: UNET Enhanced with Squeeze-Excited Attention Gates for Ice-Calving Front Segmentation .....	575
<i>Rohan Putatunda (University of Maryland Baltimore County, USA), Sanjay Purushotham (University of Maryland Baltimore County, USA), and Vandana P. Janeja (University of Maryland Baltimore County, USA)</i>	

Tensor Train Low-Rank Approximation (TT-LoRA): Democratizing AI with Accelerated LLMs .....	583
<i>Afia Anjum (Theoretical Division, Los Alamos National Laboratory, USA; University of Texas at Arlington, USA), Maksim Eren (Advanced Research in Cyber Systems, Los Alamos National Laboratory, USA), Ismael Boureima (Theoretical Division, Los Alamos National Laboratory, USA), Boian Alexandrov (Theoretical Division, Los Alamos National Laboratory, USA), and Manish Bhattarai (Theoretical Division, Los Alamos National Laboratory, USA)</i>	
Implementation of Off-Road Panoptic-Segmentation Under Dynamic Lighting Conditions .....	591
<i>Pankaj Deoli (University of Kaiserslautern-Landau, Germany), Koushik Samudrala (University of Kaiserslautern-Landau, Germany), and Karsten Berns (University of Kaiserslautern-Landau, Germany)</i>	
Analytically Determining the Robustness of Binarized Neural Networks .....	597
<i>Sahar Alzahrani (University of Liverpool, United Kingdom; Saudi Electronic University, Saudi Arabia), Sven Schewe (University of Liverpool, United Kingdom), Chao Huang (University of Southampton, United Kingdom), and Xiaowei Huang (University of Liverpool, United Kingdom)</i>	
An Approach for Data Augmentation in HAR with Wearable Sensors Using TIMEGAN .....	605
<i>Jonathan C. F. Silva (Federal University of Ouro Preto), Mateus C. Silva (Federal University of ABC), Vicente J. P. Amorim (Federal University of Ouro Preto), Pedro S. O. Lazaroni (Orthopedics and Traumatology Center of Belo Horizonte, Brazil), and Ricardo A. R. Oliveira (Federal University of Ouro Preto)</i>	
Predicting Drug Effects from High-Dimensional, Asymmetric Drug Datasets by Using Graph Neural Networks: A Comprehensive Analysis of Multitarget Drug Effect Prediction .....	612
<i>Avishek Bose (Learning Systems Group, Data and AI Systems Section, Computer Science and Mathematics Division, Oak Ridge National Laboratory, USA) and Guojing Cong (Learning Systems Group, Data and AI Systems Section, Computer Science and Mathematics Division, Oak Ridge National Laboratory, USA)</i>	
EDADepth: Enhanced Data Augmentation for Monocular Depth Estimation .....	620
<i>Nischal Khanal (University of Wyoming, USA) and Shivanand Venkanna Sheshappanavar (University of Wyoming, USA)</i>	
Financial Fraud Detection Using Jump-Attentive Graph Neural Networks .....	628
<i>Prashank Kadam (Vesta Corporation, USA)</i>	
APL: Adaptive Parameter Learning for Image Dehazing .....	636
<i>Laura A. Martinho (Univ. Federal do Amazonas (UFAM), Brazil), João M. B. Cavalcanti (Univ. Federal do Amazonas (UFAM), Brazil), José L. S. Pio (Univ. Federal do Amazonas (UFAM), Brazil), and Felipe G. Oliveira (Univ. Federal do Amazonas (UFAM), Brazil)</i>	

Deep Multi-Agent Reinforcement Learning for Real-World Signalized Traffic Corridor Control.....	644
<i>Salman Sadiq Shuvo (Pacific Northwest National Laboratory, Richland, WA), Sayak Mukherjee (Pacific Northwest National Laboratory, Richland, WA), Samrat Chatterjee (Pacific Northwest National Laboratory, Richland, WA), Sonja Glavaski (Pacific Northwest National Laboratory, Richland, WA), Draguna Vrabie (Pacific Northwest National Laboratory, Richland, WA), Geline Canayon (Aimsun, New York, NY), Matthew Jukes (Aimsun, New York, NY), and Raimundo Rodulfo (City of Coral Gables, FL)</i>	
Adaptation of Transformer Model for Numeric Case .....	652
<i>Mihhail Daniljuk (Tallinn University of Technology, Estonia), Sander Rikka (Tallinn University of Technology, Estonia), and Sven Nõmm (Tallinn University of Technology, Estonia)</i>	
Deep Learning-Based Method for an Assessment of Road Traffic Pollutant Estimation from Predicted Driving Behaviors .....	658
<i>Suzanne Bussod (IFPEN, France) and Guillaume Sabiron (IFPEN, France)</i>	
UDBE: Unsupervised Diffusion-Based Brightness Enhancement in Underwater Images .....	664
<i>Tatiana Taís Schein (Universidade Federal do Rio Grande, Brazil), Gustavo Pereira de Almeida (Universidade Federal do Rio Grande, Brazil), Stephanie Loi Brião (Universidade Federal do Rio Grande, Brazil), Rodrigo Andrade de Bem (Universidade Federal do Rio Grande, Brazil), Felipe Gomes de Oliveira (Universidade Federal do Amazonas, Brazil), and Paulo L. J. Drews (Universidade Federal do Rio Grande, Brazil)</i>	
Swef-UNet: Toward an Efficient Pure Transformer-Based Medical Image Segmentation .....	671
<i>Maryam Tavakol Elahi (University of Ottawa, Canada), WonSook Lee (University of Ottawa, Canada), and Philippe Phan (The Ottawa Hospital, Canada)</i>	
The Goofus & Gallant Story Corpus for Practical Value Alignment .....	677
<i>Md Sultan Al Nahian (University of Kentucky, USA), Tasmia Tasrin (University of Kentucky, USA), Spencer Frazier (Georgia Institute of Technology, USA), Mark Riedl (Georgia Institute of Technology, USA), and Brent Harrison (University of Kentucky, USA)</i>	
KG-Infused LLM for Virtual Health Assistant: Accelerated Inference and Enhanced Performance .....	685
<i>Siva Kumar Katta (Arizona State University, USA), Aritra Ray (Duke University, USA), Farshad Firouzi (Arizona State University, USA), and Krishnendu Chakrabarty (Arizona State University, USA)</i>	
Application of Machine Learning Techniques to Drive Immunological Insights Towards Malaria Prognosis Using Microarray Data .....	692
<i>Sashank Makanaboyina (DePaul University, USA), Zonglin Yang (DePaul University, USA), Rahul Vijay (Rosalind Franklin University of Medicine and Science (RFUMS), USA), and Thiruvarangan Ramaraj (DePaul University, USA)</i>	

WindVibraTransformer: A Foundational Model for Precise and Robust Wind Turbine Condition Monitoring via Vibration Signals .....	697
<i>Takuya Wakayama (Waseda University), Taiki Inoue (Waseda University), Jun Ogata (Artificial Intelligence Research Center, National Institute of Advanced Industrial Science and Technology (AIST)), Makoto Iida (The University of Tokyo), and Tetsuji Ogawa (Waseda University)</i>	
BrainLeaks: On the Privacy-Preserving Properties of Neuromorphic Architectures Against Model Inversion Attacks .....	705
<i>Hamed Poursiami (George Mason University, USA), Ihsen Alouani (Queen's University Belfast, UK), and Maryam Parsa (George Mason University, USA)</i>	
M-CELS: Counterfactual Explanation for Multivariate Time Series Data Guided by Learned Saliency Maps .....	713
<i>Peiyu Li (Utah State University, USA), Omar Bahri (Utah State University, USA), Soukaina Filali Boubrahimi (Utah State University, USA), and Shah Muhammad Hamdi (Utah State University, USA)</i>	
Critic Loss for Image Classification .....	719
<i>Brendan Hogan Rappazzo (Cornell University, New York), Aaron Ferber (Cornell University, New York), and Carla Gomes (Cornell University, New York)</i>	
Energy-Based Models Trained With Equilibrium Propagation are Inherently Robust .....	727
<i>Siddharth Mansingh (Los Alamos National Laboratory, Los Alamos, NM), Michal Kucer (Los Alamos National Laboratory, Los Alamos, NM), Garrett Kenyon (Los Alamos National Laboratory, Los Alamos, NM), Juston Moore (Los Alamos National Laboratory, Los Alamos, NM), and Michael Teti (Los Alamos National Laboratory, Los Alamos, NM)</i>	
Neural Network Ensembling with Random Features .....	748
<i>Jarrod Mau (Utah State University, USA) and Kevin Moon (Utah State University, USA)</i>	
Quasi-Adam: Accelerating Adam Using Quasi-Newton Approximations .....	753
<i>Aditya Ranganath (Lawrence Livermore National Laboratory, USA), Irabiel Romero Ruiz (University of California, USA), Mukesh Singhal (Electrical Engineering and Computer Science, USA), and Roummel Marcia (University of California, USA)</i>	
Recommendation Tool for Alleviating Depression and Suicidal Tendencies Through Healthier Social Media Use .....	760
<i>Travis Scott Hughes (Pennsylvania State University, USA), Bhavika Jain (Pennsylvania State University, USA), and Mahfuza Farooque (Pennsylvania State University, USA)</i>	
Out-of-Distribution Detection for Contrastive Models Using Angular Distance Measures .....	766
<i>M Shifat Hossain (University of Central Florida, USA), Sumit Kumar Jha (Florida International University, USA), Chase Walker (University of Florida, USA), and Rickard Ewetz (University of Florida, USA)</i>	

Generalizing Functional Error Correction for Language and Vision-Language Models .....	774
<i>Wenyu Peng (University of California San Diego, USA), Simeng Zheng (University of California San Diego, USA), Michael Baluja (University of California San Diego, USA), Tao Xie (San Diego State University, USA), Anxiao Jiang (Texas A&amp;M University, USA), and Paul H. Siegel (University of California San Diego, USA)</i>	
CLE: Context-Aware Local Explanations for High Dimensional Tabular Data .....	782
<i>Fazle Rahat (University of Central Florida, FL), M Shifat Hossain (University of Central Florida, FL), Md Rubel Ahmed (University of Central Florida, FL), and Rickard Ewetz (University of Florida, FL)</i>	

## MC1: Main Conference (In Person, Short Papers)

Deep Few-Shot Network for Protein Family Classification: Bridging the Gap Between Limited Data and High Performance .....	790
<i>Saeedeh Nasrin Jamali (Concordia University, Canada), Yogendra Chaubey (Concordia University, Canada), and Ashkan Ebadi (Digital Technologies Research Centre, National Research Council Canada, Canada)</i>	
Empowering Tuberculosis Screening with Explainable Self-Supervised Deep Neural Networks .....	794
<i>Neel Patel (University of Waterloo, Canada), Alexander Wong (University of Waterloo, Canada), and Ashkan Ebadi (Digital Technologies Research Centre, National Research Council Canada, Canada)</i>	
Applied Machine Learning for Surrogate Modeling: A Spatio-Temporal Approach .....	798
<i>Warren D. Graham (Coastal Carolina University, USA), Leslie A. Horace (Coastal Carolina University, USA), William M. Jones (Coastal Carolina University, USA), Sean Tronsen (Los Alamos National Laboratory, USA), Sharmistha Chakrabarti (Los Alamos National Laboratory, USA), Vanessa Job (Los Alamos National Laboratory, USA), and Nathan A. DeBardeleben (Los Alamos National Laboratory, USA)</i>	
Typicality for Information Retrieval with Application on Sample Size Reduction of High Dimensional Data .....	804
<i>Nada Abdalla (Amazon Web Services, Seattle), Muhammad Umar Javed (Amazon Web Services, Seattle), and Damien Forthomme (Amazon Web Services, Seattle)</i>	
Solar Image Synthesis with Generative Adversarial Networks .....	810
<i>Haodi Jiang (Sam Houston State University, USA) and Jason T. L. Wang (New Jersey Institute of Technology, USA)</i>	
Optimizing 3D Geometry Reconstruction from Implicit Neural Representations .....	816
<i>Shen Fan (Dept. of Computer Science, New Jersey Institute of Technology, USA) and Przemyslaw Musialski (Dept. of Computer Science, New Jersey Institute of Technology, USA)</i>	
Spectral Wavelet Dropout: Regularization in the Wavelet Domain .....	822
<i>Rinor Cakaj (University of Stuttgart, Germany), Jens Mehnert (Signal Processing, Robert Bosch GmbH, Germany), and Bin Yang (University of Stuttgart, Germany)</i>	

REFORMER: A ChatGPT-Driven Data Synthesis Framework Elevating Text-to-SQL Models .....	828
<i>Shenyang Liu (University of Central Florida, USA), Saleh Almohameed (University of Central Florida, USA), and Liqiang Wang (University of Central Florida, USA)</i>	
Centralized Multi-Agent Proximal Policy Optimization with Attention .....	834
<i>Hugo Cazaux (Reykjavik University, Iceland), Ralph Rudd (Reykjavik University, Iceland), Hlynur Stefánsson (Reykjavik University, Iceland), Sverrir Ólafsson (Reykjavik University, Iceland), and Eyjólfur Ingi Ásgeirsson (Reykjavik University, Iceland)</i>	
Impact of Transfer Learning on Transformers Networks for Prostate Image Segmentation .....	841
<i>Xavier Casanova (Universidad San Francisco de Quito, Ecuador) and Maria Baldeon-Calisto (Universidad San Francisco de Quito, Ecuador)</i>	
IntelliBeeHive: An Automated Honey Bee, Pollen, and Varroa Destructor Monitoring System .....	845
<i>Christian Narcia-Macias (University of Texas Rio Grande Valley), Joselito Guardado (University of Texas Rio Grande Valley), Jocell Rodriguez (University of Texas Rio Grande Valley), Junseong Park (University of Texas Rio Grande Valley), Joanne Rampersad-Ammons (University of Texas Rio Grande Valley), Erik Enriquez (University of Texas Rio Grande Valley), and Dong-Chul Kim (University of Texas Rio Grande Valley)</i>	
Exploring Machine Learning for Faster Mapping and Scheduling of Automotive Applications on ADAS Platforms .....	851
<i>Rafael Sterzinger (Institute of Computer Technology, TU Wien, Austria), Wolfgang Koch (Institute of Computer Technology, TU Wien, Austria), and Ralph Hoch (Institute of Computer Technology, TU Wien, Austria)</i>	
Graph Polynomial Convolution Models for Node Classification of Non-Homophilous Graphs .....	856
<i>Kishan Wimalawarne (University of Tokyo, Japan), Taro Sawaki (Japan Digital Design, Inc., Japan), Motokiyo Hirayama (Japan Digital Design, Inc., Japan), Takanobu Kawahara (Japan Digital Design, Inc., Japan), and Taiji Suzuki (University of Tokyo, Japan)</i>	
Towards Holistic Disease Risk Prediction Using Small Language Models .....	864
<i>Liv Björkdahl (AI Sweden, Sweden), Oskar Pauli (AI Sweden, Sweden), Johan Östman (AI Sweden, Sweden), Chiara Ceccobello (AI Sweden, Sweden), Sara Lundell (Sahlgrenska University Hospital, Sweden), and Magnus Kjellberg (Sahlgrenska University Hospital, Sweden)</i>	
Variational Information Bottleneck with Gaussian Processes for Time-Series Classification .....	870
<i>Itamar Efrati (Reichman University, Israel) and Shai Fine (Reichman University, Israel)</i>	
Predicting Temporal Patterns in Keyword Searches with Recurrent Neural Networks — Phenotyping Human Behaviour from Search Engine Usage .....	876
<i>Jay Paul Morgan (Swansea University, United Kingdom) and Frederic Boy (Swansea University, United Kingdom)</i>	
Deep Learning-Based Modeling of Daily Suspended Sediment Concentration and Discharge in Esopus .....	882
<i>Marzieh Khosravi (Sci-Tek Consultants, Inc., USA), Shima Ghoochani (CHA consulting Inc., USA), and Hanieh Shabanian (Western New England University, USA)</i>	



Robust Detection of Line Numbers in Piping and Instrumentation Diagrams (P&IDs) .....	888
<i>Vasil Shteriyarov (McDermott, Netherlands), Rimma Dzhusupova (McDermott, Netherlands), Jan Bosch (Chalmers University of Technology, Sweden), and Helena Olsson (Malmo University, Sweden)</i>	
Detecting Salmon Lice in Seawater Using Synthetic Datasets .....	894
<i>Lei Zheng (Wageningen University and Research, The Netherlands), Chao Zhang (Wageningen University and Research, The Netherlands), Marc Bracke (Wageningen University and Research, The Netherlands), Lars Gansel (Norwegian University of Science and Technology, Norway), and Ricardo da Silva Torres (Wageningen University and Research, The Netherlands)</i>	
Improving Audience Ratings Prediction of Japanese TV Dramas using Knowledge-Based Embeddings .....	900
<i>Jerry Bonnell (University of Miami, USA), Stefan Wuchty (University of Miami, USA), and Mitsunori Ogihara (University of Miami, USA)</i>	
New Product Sales Forecasting Model Leveraging Data Homogeneity and Ensemble Method: A Case Study on Smartphone .....	906
<i>Seongbeom Hwang (LG Uplus Corp., Republic of Korea), Goonhu Yoon (LG Uplus Corp., Republic of Korea), Eunjung Baek (LG Uplus Corp., Republic of Korea), Young-Sub Han (LG Uplus Corp., Republic of Korea), and Byoung-Ki Jeon (LG Uplus Corp., Republic of Korea)</i>	
RAG Certainty: Quantifying the Certainty of Context-Based Responses by LLMs .....	912
<i>Kento Hasegawa (KDDI Research, Inc., Japan), Seira Hidano (KDDI Research, Inc., Japan), and Kazuhide Fukushima (KDDI Research, Inc., Japan)</i>	
Forecasting of Low Visibility Using Weather and Air Quality Data for Safe and Smooth Transportation Operation .....	918
<i>Topon Paul (Toshiba Corporation, Japan), Vidhisha Reddy (Toshiba Software (India) Pvt. Ltd., India), Sai Prem Kumar Ayyagari (Toshiba Software (India) Pvt. Ltd., India), Ryusei Shingaki (Toshiba Corporation, Japan), and Kaneharu Nishino (Toshiba Corporation, Japan)</i>	
Machine Learning Meets EEG: A Novel Approach to PGA-Based Authentication Systems .....	924
<i>Ioannis Katoikos (University of Patras, Greece), Christos A. Fidas (University of Patras, Greece), and Dimitrios Koukopoulos (University of Patras, Greece)</i>	
CyberLlama2 - MEDICALHARM Threat Modeling Assistant .....	930
<i>Emmanuel Kwarteng (Marquette University, USA), Mumin Cebe (Marquette University, USA), and Jamila Kwarteng (Institute for Health &amp; Equity, Medical College of Wisconsin, USA)</i>	
Approximate Bisimulation Relation Restoration for Neural Networks Based On Knowledge Distillation .....	935
<i>Jie Chen (Southwest Jiaotong University, China), Zihao Mo (Augusta University, USA), Tao Wang (Southwest Jiaotong University, China), and Weiming Xiang (Augusta University, USA)</i>	
V-CAS: A Realtime Vehicle Anti Collision System Using Vision Transformer on Multi-Camera Streams .....	939
<i>Muhammad Waqas Ashraf (NUST, Pakistan), Ali Hassan (NUST, Pakistan), and Imad Ali Shah (University of Galway, Ireland)</i>	

Learning Time-Optimal Control of Gantry Cranes .....	945
<i>Junmin Zhong (Mitsubishi Electric Research Labs, Cambridge, Massachusetts), Daniel Nikovski (Mitsubishi Electric Research Labs, Cambridge, Massachusetts), William Yerazunis (Mitsubishi Electric Research Labs, Cambridge, Massachusetts), and Taishi Ando (Mitsubishi Electric Automation, Inc., Cambridge, Massachusetts)</i>	
Evaluating Text Summaries Generated by Large Language Models Using OpenAI's GPT .....	951
<i>Hassan Shakil (University of Colorado - Colorado Springs, Colorado Springs, CO), Atqiya Munawara Mahi (University of Massachusetts Lowell, Lowell, MA), Phuoc Nguyen (University of Kansas, Lawrence, Kansas), Zeydy Ortiz (DataCrunch Lab, LLC, Cary, NC), Jugal Kalita (University of Colorado - Colorado Springs, Colorado Springs, CO), and Mamoun T. Mardini (University of Florida, Gainesville, FL)</i>	
Fuels Demand Forecasting: Identifying Leading Feature Sets, Prediction Strategy, and Regressors .....	957
<i>Jonas Krause (Pontificia Universidade Católica do Paraná (PUCPR), Brazil), Alexandre Beiruth (Pontificia Universidade Católica do Paraná (PUCPR), Brazil), Jean Barddal (Pontificia Universidade Católica do Paraná (PUCPR), Brazil), Alceu Britto (Pontificia Universidade Católica do Paraná (PUCPR), Brazil), and Vinicius Souza (Pontificia Universidade Católica do Paraná (PUCPR), Brazil)</i>	
Graph Signal Processing Unearths the Best Locations for Soil Moisture Sensors .....	963
<i>Jurgen van den Hoogen (Osnabrück University, Germany), Dan Hudson (Osnabrück University, Germany), and Martin AtzmueLLer (Osnabrück University, Germany)</i>	
ECSTGen and iZen: A New NLP Task and A Zero-Shot Framework to Perform It .....	969
<i>Md Riyadh (Carleton University, Canada) and M. Omair Shafiq (Carleton University, Canada)</i>	
CFC-ATE: Causal Feature Construction via Average Treatment Effect .....	975
<i>Asmae Lamsaf (University of Beira Interior, Portugal), Hugo Proenca (University of Beira Interior, Portugal), and João Neves (University of Beira Interior, Portugal)</i>	
Combining Transfer Learning and Representation Learning to Improve Predictive Analytics on Small Materials Data .....	981
<i>Vishu Gupta (Northwestern University, USA), Wei-keng Liao (Northwestern University, USA), Alok Choudhary (Northwestern University, USA), and Ankit Agrawal (Northwestern University, USA)</i>	
Pedestrian Detection: An Explainable Approach .....	985
<i>Hongbo Pang (Carleton University, Canada) and Changcheng Huang (Carleton University, Canada)</i>	
Scheduled Sampling for Recursive Multi-Step GPU Temperature Forecasting .....	991
<i>Harold Wang (University of California, San Diego, CA), Xunfei Jiang (California State University, Northridge, CA), and Mahdi Ebrahimi (California State University, Northridge, CA)</i>	

Tackling the Nonlinearity Problem in Inverse Modeling: Mixture Density Network-Backed Quantized AutoEncoder .....	997
<i>Muhammed Nur Talha Kilic (Northwestern University, USA), Yuwei Mao (Northwestern University, USA), Vishu Gupta (Northwestern University, USA), Alok Choudhary (Northwestern University, USA), Wei-keng Liao (Northwestern University, USA), and Ankit Agrawal (Northwestern University, USA)</i>	
Exploring Machine Learning Engineering for Object Detection and Tracking by Unmanned Aerial Vehicle (UAV) .....	1001
<i>Aneesha Guna (Edgewood Jr/Sr High School, USA), Parth Ganeriwala (Department of Computer Science, Florida Institute of Technology, USA), and Siddhartha Bhattacharyya (Department of Computer Science, Florida Institute of Technology, USA)</i>	
Temporal Tensor Factorization: A Framework for Low-Rank Multilinear Time Series Forecasting .....	1005
<i>Jackson Cates (South Dakota Mines, USA), Randy C. Hoover (South Dakota Mines, USA), Kyle Caudle (South Dakota Mines, USA), David Marchette (Naval Surface Warfare Center, USA), and Karissa Schipke (South Dakota Mines, USA)</i>	
A Multi-view Android Malware Detection Model Through Multi-Objective Optimization .....	1011
<i>Philipe Fransozi (Pontifical Catholic University of Parana, Brazil), Jhonatan Geremias (Pontifical Catholic University of Parana, Brazil), and Eduardo Kugler Viegas (Pontifical Catholic University of Parana, Brazil)</i>	
Optimizing Parking Space Classification: Distilling Ensembles into Lightweight Classifiers.....	1016
<i>Paulo Luza Alves (Universidade Federal do Paraná, Brazil), André Gustavo Hochuli (Pontificia Universidade Católica do Paraná, Brazil), Luiz Eduardo de Oliveira (Universidade Federal do Paraná, Brazil), and Paulo Lisboa de Almeida (Universidade Federal do Paraná, Brazil)</i>	
Enhancing Deep Neural Network Classification Performance Through Novel Weight Initialization: t-SNE Supported Walsh Matrix Approach .....	1021
<i>Muhammed Nur Talha Kilic (Northwestern University, USA), Vishu Gupta (Northwestern University, USA), Yuwei Mao (Northwestern University, USA), Kewei Wang (Northwestern University, USA), Alec Peltekian (Northwestern University, USA), Alok Choudhary (Northwestern University, USA), Wei-keng Liao (Northwestern University, USA), and Ankit Agrawal (Northwestern University, USA)</i>	
Automated Shared Phenotype Discovery in Undiagnosed Cohorts for Rare Disease Research .....	1025
<i>Aaron Masino (Clemson University, USA) and Ranga Baminiwatte (Clemson University, USA)</i>	
Positional Tracking of Physical Objects in an Augmented Reality Environment Using Neuromorphic Vision Sensors .....	1031
<i>Flore Sté cie Norcé ide (University of Massachusetts Lowell, USA), Emi Aoki (University of Massachusetts Lowell, USA), Vinh Tran (University of Massachusetts Lowell, USA), Masoumeh Farhadi Nia (University of Massachusetts Lowell, USA), Charles Thompson (University of Massachusetts Lowell, USA), and Kavitha Chandra (University of Massachusetts Lowell, USA)</i>	

4bit-Quantization in Vector-Embedding for RAG .....	1037
<i>Taehee Jeong (San Jose State University)</i>	
DOC-DICAM: Domain Aware One Class Defect Identification in Composite Aerostructure Material .....	1043
<i>Austin Yunker (Argonne National Laboratory, USA), Rajkumar Kettimuthu (Argonne National Laboratory, USA), and Zachary Kral (Spirit AeroSystems, USA)</i>	
3D Vehicle Detection in Roadside Traffic Flow Using Complex-YOLO .....	1049
<i>Jonathan Cordova (California State University, Northridge, CA), Xunfei Jiang (California State University, Northridge, CA), Xudong Jia (California State University, Northridge, CA), and Bingbing Li (California State University, Northridge, CA)</i>	
Discrepancy-Based Knowledge Distillation for Image Classification Restoration .....	1055
<i>Zihao Mo (Augusta University, USA), Yejiang Yang (Augusta University, USA; Southwest Jiaotong University, China), and Weiming Xiang (Augusta University, USA)</i>	
On the Effectiveness of a Hybrid Model for Volatility Prediction .....	1061
<i>Saiastrith Evm Baddepudi (IISER, India) and Akshay Agarwal (IISER, India)</i>	
Multi-Task Learning for Material Property Prediction .....	1065
<i>Chowdhury Mohammad Abid Rahman (West Virginia University), Nishat Binte Alam (West Virginia University), Amr S. El-Wakeel (West Virginia University), JuHyeong Ryu (West Virginia University), and Prashnna K. Gyawali (West Virginia University)</i>	
Enhancing Dialogue Analysis in Multiparty Meetings Through Argument and Relation Classification Models .....	1071
<i>Vishal Vaitla (San Jose State University, USA), Melody Moh (San Jose State University, USA), and Teng-Sheng Moh (San Jose State University, USA)</i>	
Contrastive Representation Learning for Predicting Solar Flares from Extremely Imbalanced Multivariate Time Series Data .....	1077
<i>Onur Vural (Utah State University, USA), Shah Muhammad Hamdi (Utah State University, USA), and Soukaina Filali Boubrahimi (Utah State University, USA)</i>	
Multi-Modal Contrastive Learning for Medical Image Classification with Limited Training Data .....	1083
<i>Shengzhe Jiao (Osaka University, Japan), Yihong Zhang (Osaka University, Japan), Yuanyuan Wang (Yamaguchi University, Japan), Shingo Mabu (Yamaguchi University, Japan), Haoyang Xia (Yamaguchi University, Japan), and Takahiro Hara (Osaka University, Japan)</i>	
Causal Inference in Finance: An Expertise-Driven Model for Instrument Variables Identification and Interpretation .....	1089
<i>Ying Chen (Tokyo Institute of Technology, Japan), Ziwei Xu (National Institute of Advanced Industrial Science and Technology, Japan), Kotaro Inoue (Tokyo Institute of Technology, Japan), and Ryutaro Ichise (Tokyo Institute of Technology, Japan)</i>	

Shrinking: Reconstruction of Parameterized Surfaces from Signed Distance Fields .....	1095
<i>Haotian Yin (New Jersey Institute of Technology, USA) and Przemyslaw Musialski (New Jersey Institute of Technology, USA)</i>	
Pre-Train, Mixup and Fine-Tune: A Simple Strategy to Handle Domain Shift .....	1101
<i>Haider Ilyas (Deloitte &amp; Touche LLP, USA), Harika Abburi (Deloitte &amp; Touche Assurance &amp; Enterprise Risk Services India Private Limited, India), Edward Bowen (Deloitte &amp; Touche LLP, USA), and Balaji Veeramani (Deloitte &amp; Touche LLP, USA)</i>	
Location Invariant Flood Prediction Using Fourier Neural Operator .....	1105
<i>Chetan Kumar (Old Dominion University, USA), Diana McSpadden (Thomas Jefferson National Accelerator Facility, USA; Old Dominion University, USA), Steven Goldenberg (Thomas Jefferson National Accelerator Facility, USA), Malachi Schram (Thomas Jefferson National Accelerator Facility, USA; Old Dominion University, USA), Heather Richter (Old Dominion University, USA), Yidi Wang (University of Virginia, USA), Binata Roy (University of Virginia, USA), and Jonathan L. Goodall (University of Virginia, USA)</i>	
CNN-JEPA: Self-Supervised Pretraining Convolutional Neural Networks Using Joint Embedding Predictive Architecture .....	1111
<i>András Kalapos (Budapest University of Technology and Economics, Hungary) and Bálint Gyires-Tóth (Budapest University of Technology and Economics, Hungary)</i>	
Target Permutation for Feature Significance and Applications in Neural Networks .....	1115
<i>Sanad Biswas (Kennesaw State University, USA), Nina Grundlingh (Kennesaw State University, USA), Jonathan Boardman (Equifax Inc., USA), Joseph White (Equifax Inc., USA), and Linh Le (Kennesaw State University, USA)</i>	
Improving Features for Multiple Sclerosis Disability Progression Prediction through Temporal Alignment of Hospital Visits .....	1121
<i>Karel Fonteyn (Ghent University - imec, Belgium), Tom Dhaene (Ghent University - imec, Belgium), and Dirk Deschrijver (Ghent University - imec, Belgium)</i>	
Multi-Label Behavioral Health Classification from Police Narrative Report .....	1125
<i>Abm Adnan Azmee (Kennesaw State University, USA), Francis Nweke (Kennesaw State University, USA), Md Abdullah Al Hafiz Khan (Kennesaw State University, USA), Yong Pei (Kennesaw State University, USA), Dominic Thomas (Kennesaw State University, USA), and Monica Nandan (Kennesaw State University, USA)</i>	
Evaluating Large Language Models in Vulnerability Detection Under Variable Context Windows	1131
<i>Jie Lin (University of Central Florida) and David Mohaisen (University of Central Florida)</i>	
Quantifying Influencer Impact on Affective Polarization .....	1135
<i>Rezaur Rashid (UNC Charlotte, USA), Joshua Melton (UNC Charlotte, USA), Ouldouz Ghorbani (UNC Charlotte, USA), Siddharth Krishnan (UNC Charlotte, USA), Shannon Reid (UNC Charlotte, USA), and Gabriel Terejanu (UNC Charlotte, USA)</i>	

Analyzing Inconsistencies Across Financial Services Machine Learning Algorithms and Implementations .....	1141
<i>Syed Muhammad Ammar Haider (Colgate University, USA) and Raina Samuel (Montclair State University, USA)</i>	
Enhancing Tabular GAN Fairness: The Impact of Intersectional Feature Selection .....	1146
<i>Tahereh Dehdarirad (Linköping University, Sweden), Ericka Johnson (Linköping University, Sweden), Gabriel Eilertsen (Linköping University, Sweden), and Saghi Hajisharif (Linköping University, Sweden)</i>	
Exploring Testing Methods for Large Language Models .....	1152
<i>Timothy Elvira (Embry-Riddle Aeronautical University, Florida), Tyler Thomas Procko (Embry-Riddle Aeronautical University, Florida), Lynn Vonderhaar (Embry-Riddle Aeronautical University, Florida), and Omar Ochoa (Embry-Riddle Aeronautical University, Florida)</i>	
Deep Learning with Uncertainty Quantification for Predicting the Segmentation Dice Coefficient of Prostate Cancer Biopsy Images .....	1158
<i>Audrey Xie (Media Arts &amp; Sciences, Massachusetts Institute of Tech., USA), Elhoucine Elfatimi (University of California, USA), Sambuddha Ghosal (Media Arts &amp; Sciences, Massachusetts Institute of Tech., USA), and Pratik Shah (University of California, USA)</i>	
Explainable Transformer-Based Intrusion Detection in Internet of Medical Things (IoMT) Networks .....	1164
<i>Rajesh Kalakoti (School of Information Technology, TalTech, Estonia), Sven Nõmm (School of Information Technology, TalTech, Estonia), and Hayretdin Bahsi (Northern Arizona University, USA)</i>	
Evaluating Alignment Techniques for Enhancing LLM Performance in a Closed-Domain Application: a RAG Bench-Marking Study .....	1170
<i>Ahmad Al-Zuraiqi (Queen's University Belfast, United Kingdom) and Des Greer (Queen's University Belfast, United Kingdom)</i>	
Enhancing Long-Term Re-Identification Robustness Using Synthetic Data: A Comparative Analysis .....	1176
<i>Christian Pionzewski (Fraunhofer Institute for Material Flow and Logistics, Germany), Rebecca Rademacher (Fraunhofer Institute for Material Flow and Logistics, Germany), Jérôme Rutinowski (TU Dortmund University, Germany), Antonia Ponikarov (Fraunhofer Institute for Material Flow and Logistics, Germany), Stephan Matzke (Fraunhofer Institute for Material Flow and Logistics, Germany), Tim Chilla (Fraunhofer Institute for Material Flow and Logistics, Germany), Pia Schreynemackers (Fraunhofer Institute for Material Flow and Logistics, Germany), and Alice Kirchheim (Fraunhofer Institute for Material Flow and Logistics, Germany; TU Dortmund University, Germany)</i>	
The Theory of Probabilistic Hierarchical Supervised Ensemble Learning .....	1182
<i>Ziauddin Ursani (University of Liverpool, United Kingdom), Dmytro Antypov (University of Liverpool, United Kingdom), Katie Atkinson (University of Liverpool, United Kingdom), Judith Clymo (University of Liverpool, United Kingdom), Matthew Dyer (University of Liverpool, United Kingdom), Matthew Rosseinsky (University of Liverpool, United Kingdom), Sven Schewe (University of Liverpool, United Kingdom), and Andriy Vasylenko (University of Liverpool, United Kingdom)</i>	

Semi-Supervised Learning and Focal Masking for Vessel Segmentation in X-ray Coronary Angiography .....	1188
<i>Zhewei Wang (Ohio University) and Jundong Liu (Ohio University)</i>	
Virtual-Coordinate Based Sampling and Embedding for Machine Learning with Graph Data .....	1192
<i>Zheyi Qin (Colorado State University, USA), Anura P. Jayasumana (Colorado State University, USA), and Randy Paffenroth (Mathematical Sciences, Computer Science, and Data Science, Worcester Polytechnic Institute, USA)</i>	
Enhancing Financial Fraud Detection with Human-in-the-Loop Feedback and Feedback Propagation .....	1198
<i>Prashank Kadam (Vesta Corporation, USA)</i>	
Media Haze Classification in Retinal Images Using Transfer Learning with Convolutional Neural Networks .....	1204
<i>Jonathan O’Berry (University of North Florida, USA) and Xudong Liu (University of North Florida, USA)</i>	
Evaluating the Efficacy of Large Language Models in Automating Academic Peer Reviews .....	1208
<i>Weimin Zhao (Ontario Tech University, Canada) and Qusay Mahmoud (Ontario Tech University, Canada)</i>	
Learning Input Driven Dynamic Bayesian Networks with Measurement Noise .....	1214
<i>David Veres (The University of Sheffield, United Kingdom), Ping Li (The University of Sheffield, United Kingdom), and Visakan Kadirkamanathan (The University of Sheffield, United Kingdom)</i>	
Gaussian Process Neural Network Embeddings for Collaborative Filtering .....	1220
<i>Wei Zhang (Columbia University), Brian Barr (Capital One Labs), and John Paisley (Columbia University)</i>	
Contrastive Learning with Auxiliary User Detection for Identifying Activities .....	1226
<i>Wen Ge (Worcester Polytechnic Institute, USA), Guanyi Mou (Worcester Polytechnic Institute, USA), Emmanuel O. Agu (Worcester Polytechnic Institute, USA), and Kyumin Lee (Worcester Polytechnic Institute, USA)</i>	
Novel L1-Based Neural Gas Clustering Algorithms .....	1232
<i>Nico L. Cavalcant (Universidade Federal de Pernambuco, Brazil) and Francisco de Assis Tenório de Carvalho (Universidade Federal de Pernambuco, Brazil)</i>	
Enhanced Distribution Matching for Multiclass Quantification .....	1238
<i>Danuka Malinda (Southern Illinois Uninversity, USA), Danushka Senarathna (Southern Illinois Uninversity, USA), and Spyros Tragoudas (Southern Illinois Uninversity, USA)</i>	
Developing an Autonomous Robotics System Utilizing Camera and IMU Fusion with PID- Based Path Correction .....	1243
<i>Harsha Penumatcha (North Carolina A&amp;T State University, USA), Chandra P. Jaiswal (North Carolina A&amp;T State University, USA), Sasank Vegesana (North Carolina A&amp;T State University, USA), Issa W. AlHmoud (North Carolina A&amp;T State University, USA), and Balakrishna Gokaraju (North Carolina A&amp;T State University, USA)</i>	
Comparative Study of Machine Learning Techniques in Prediction of Superfund Sites .....	1249
<i>Karthik Sabhanayakam (Intelliscience Institute, USA), Arya Kamat (Intelliscience Institute, USA), and Sohail Zaidi (San Jose State University, USA)</i>	

Spectral Recovery Via Spectral-Aware Perceptual Loss .....	1253
<i>Ignacio Loayza Campos (Federico Santa María Tech. U., Chile), Ricardo Nanculef Alegría (Federico Santa María Tech. U., Chile), and Roxana Trujillo Guíñez (Federico Santa María Tech. U., Chile)</i>	
GEM-RAG: Graphical Eigen Memories For Retrieval Augmented Generation .....	1259
<i>Brendan Hogan Rappazzo (Cornell University, New York), Yingheng Wang (Cornell University, New York), Aaron Ferber (Cornell University, New York), and Carla Gomes (Cornell University, New York)</i>	
DeepCensored: Deep-Learning Based Probabilistic Forecasting Framework for Censored Data ....	1265
<i>Jiahao Tian (University of Virginia, USA) and Michael D. Porter (University of Virginia, USA)</i>	
Multi-Label Classification Using Self-Supervised Learning: Addressing Class Inter-Dependency and Data Imbalance .....	1271
<i>Ghazaleh Mirzaee (West Virginia University, USA), Gianfranco Doretto (West Virginia University, USA), and Donald Adjeroh (West Virginia University, USA)</i>	
Optimal Parameter Estimation of Biological Systems Through Deep Reinforcement Learning .....	1277
<i>Fadil Santosa (Johns Hopkins University, USA) and Loren Anderson (University of Minnesota Twin Cities, USA)</i>	
Mixture-of-Experts for Multi-Domain Defect Identification in Non-Destructive Inspection .....	1283
<i>Venkata Devesh Reddy Seethi (Northern Illinois University, USA), Ashiqur Rahman (Northern Illinois University, USA), Austin Yunker (Argonne National Laboratory, USA), Rami Lake (Northern Illinois University, USA), Zachary Kral (Spirit AeroSystems, USA), Rajkumar Kettimuthu (Argonne National Laboratory, USA), and Hamed Alhoori (Northern Illinois University, USA)</i>	
NSP: A Neuro-Symbolic Natural Language Navigational Planner .....	1289
<i>William English (University of Florida, USA), Dominic Simon (University of Florida, USA), Sumit Kumar Jha (Florida International University, USA), and Rickard Ewetz (University of Florida, USA)</i>	
Predicting Fold-Switching Protein Behavior Using Graph Neural Networks .....	1295
<i>Avi Lekkelapudi (Bellarmine College Preparatory, USA) and Darnell Granberry (Inspirit AI, USA)</i>	

## MC2: Main Conference (Virtual, Regular Papers)

LyriX : Automated Lyrics Transcription Using Deep Learning-Based Residual UNet Model .....	1301
<i>Arijit Roy (vidyo.ai, India), Esha Baweja (Manipal University Jaipur, India), and Ashish Kumar (Manipal University Jaipur, India)</i>	
Evaluating the Clinical Applicability of Neural Networks for Meningioma Tumor Segmentation on Multiparametric 3D MRI .....	1308
<i>Diya Sreedhar (Troy High School, USA)</i>	
Volumetric Feature Extraction from 2D Images Using Cubixels .....	1314
<i>Sanad Aburass (Luther College, USA) and Maha Abu Rumman (Maharishi International University, USA)</i>	



Comparative Evaluation of Autoencoders for Semi- Supervised Anomaly Detection on Univariate Time Series Data .....	1321
<i>Tijana Markovic (Mälardalen University, Sweden), Sara Moricz (Sensative AB, Sweden), and Miguel Leon (Mälardalen University, Sweden)</i>	
S-Omninet: Structured Data Enhanced Universal Multimodal Learning Architecture .....	1329
<i>Ye Xue (Northwestern University, USA), Diego Klabjan (Northwestern University, USA), and Jean Utke (Allstate Insurance Company, USA)</i>	
Student Mental Health Screening with Text Message Metadata .....	1337
<i>MI Tlachac (Bryant University, USA) and Samuel S. Ogden (California State University, USA)</i>	

## Special Session 1: Deep Learning and Applications (Regular Papers)

A Comparative Analysis of Transformer and LSTM Models for Detecting Suicidal Ideation on Reddit .....	1343
<i>Khalid Hasan (Missouri State University, USA) and Jamil Saquer (Missouri State University, USA)</i>	
Enhancing Synthetic Well Logs with PCA-Based GAN Models .....	1350
<i>Luciano Garim Garcia (Universidade do Vale do Rio dos Sinos, Brazil), Gabriel de Oliveira Ramos (Universidade do Vale do Rio dos Sinos, Brazil), José Manuel Marques Teixeira de Oliveira (Universidade do Vale do Rio dos Sinos, Brazil), and Ariane Santos da Silveira (Universidade do Vale do Rio dos Sinos, Brazil)</i>	
Mental Stress Classification by Attention-Based CNN-LSTM Algorithm of Electrocardiogram Signal .....	1356
<i>Jihun Lee (Chosun University, Korea), Jisun Hong (Chosun University, Korea), Daegil Choi (Chosun University, Korea), and Jaehyo Jung (Chosun University, Korea)</i>	
Multi-Spheres Anomaly Detection with Hyperspherical Layers .....	1362
<i>de Saint Angel Julien (La Rochelle University, France) and Saint-Jean Christophe (La Rochelle University, France)</i>	
Depression Classification Algorithm Based on Voice Signals Using MFCC and CNN Autoencoders.....	1368
<i>Jisun Hong (Chosun University, Korea), Jihun Lee (Chosun University, Korea), Daegil Choi (Chosun University, Korea), and Jaehyo Jung (Chosun University, Korea)</i>	
WeedVision: Multi-Stage Growth and Classification of Weeds Using DETR and RetinaNet for Precision Agriculture .....	1374
<i>Taminul Islam (Southern Illinois University, USA), Toqi Tahamid Sarker (Southern Illinois University, USA), Khaled R Ahmed (Southern Illinois University, USA), Cristiana Bernardi Rankrape (Southern Illinois University, USA), and Karla Gage (Southern Illinois University, USA)</i>	
Efficient Retraining for Continuous Operability Through Strategic Directives .....	1382
<i>Gentoku Nakasone (Waseda University, Japan), Yoshinari Motokawa (Waseda University, Japan), Yuki Miyashita (Waseda University, Japan), and Toshiharu Sugawara (Waseda University, Japan)</i>	

Evaluating Adversarial Attacks on Traffic Sign Classifiers Beyond Standard Baselines .....	1390
<i>Svetlana Pavlitska (FZI Research Center for Information Technology, Germany; Karlsruhe Institute of Technology (KIT), Germany), Leopold Müller (Karlsruhe Institute of Technology (KIT), Germany), and J. Marius Zöllner (FZI Research Center for Information Technology, Germany; Karlsruhe Institute of Technology (KIT), Germany)</i>	
Real-Time Automatic Checkout via Prompt-Based Product Extraction and Cross-Domain Learning.....	1396
<i>Tobias Pettersson (University of Skövde, Sweden; Jönköping University, Sweden), Maria Riveiro (Jönköping University, Sweden), and Tuwe Löfström (Jönköping University, Sweden)</i>	
Edge-Centric Real-Time Segmentation for Autonomous Underwater Cave Exploration .....	1404
<i>Mohammadreza Mohammadi (University of South Carolina, USA), Adnan Abdullah (University of Florida, USA), Aishneet Juneja (University of South Carolina, USA), Ioannis Rekleitis (University of South Carolina, USA), Md Jahidul Islam (University of Florida, USA), and Ramtin Zand (University of South Carolina, USA)</i>	
Interpretable Deep Learning Model for Multiclass Brain Tumor Classification .....	1412
<i>Raihana Tasnim (North Carolina A&amp;T State University, USA), Kaushik Roy (North Carolina A&amp;T State University, USA), and Madhuri Siddula (North Carolina A&amp;T State University, USA)</i>	
Turn Down The Noise: Perceptually Constrained Attacks for Multi-Label Audio Classification.....	1418
<i>Erick Capulong (Naval Postgraduate School, USA), Marko Orescanin (Naval Postgraduate School, USA), Pedro Ortiz (Naval Postgraduate School, USA), and Patrick McClure (Naval Postgraduate School, USA)</i>	
Leveraging LLMs for Integrated Sentiment and Topic Analysis on African Social Media .....	1426
<i>Harriet Sibilitenda (University of Gaston Berger, Senegal), Ruofan Hu (Data Science Program, Worcester Polytechnic Institute, USA), Elke Rundensteiner (Computer Science/Data Science Program, Worcester Polytechnic Institute, USA), Awa Diattara (University of Gaston Berger, Senegal), Assitan Traore (Data Science Department, Actroll, France), and Cheikh Ba (University of Gaston Berger, Senegal)</i>	
Deep Fake Video Classification with Sequential Input Frames Using Hybrid Deep Learning Model and Bayesian Optimization .....	1432
<i>Swetha Chittam (North Carolina Agricultural and Technical State University, USA), David Johnson (North Carolina Agricultural and Technical State University, USA), Kaushik Roy (North Carolina Agricultural and Technical State University, USA), and Xiaohong Yuan (North Carolina Agricultural and Technical State University, USA)</i>	
Finding an Optimal Small Sample of Training Dataset for Computer Vision Deep-Learning Models .....	1439
<i>Aviv Yehezkel (Cynamics, Israel) and Eyal Elyashiv (Cynamics, USA)</i>	
Deep Learning Enhanced Gap Filling in Drosophila Melanogaster Genomic Data .....	1447
<i>Jivitesh Sharma (Norwegian Institute for Air Research), Stefan Jetschny (Norwegian Institute for Air Research), Martin Kapun (Natural History Museum Vienna), and Mohamed-Bachir Belaid (Norwegian Institute for Air Research)</i>	

A Dissimilarity-Based Countermeasure for Detecting Replay Attacks in Speaker Verification .....	1454
<i>Maria Eduarda Maciel Pinto (Pontifícia Universidade Católica do Paraná, Brazil), Alceu de Souza Britto (Pontifícia Universidade Católica do Paraná, Brazil), and Andre Gustavo Hochuli (Pontifícia Universidade Católica do Paraná, Brazil)</i>	
Towards Adversarial Robustness of Model-Level Mixture-of-Experts Architectures for Semantic Segmentation .....	1460
<i>Svetlana Pavlitska (FZI Research Center for Information Technology, Germany; Karlsruhe Institute of Technology (KIT), Germany), Enrico Eisen (Karlsruhe Institute of Technology (KIT), Germany), and J. Marius Zöllner (FZI Research Center for Information Technology, Germany; Karlsruhe Institute of Technology (KIT), Germany)</i>	
Preserving Accuracy While Stealing Watermarked Deep Neural Networks .....	1466
<i>Aritra Ray (Duke University, USA), Farshad Firouzi (Arizona State University, USA), Kyle Lafata (Duke University, USA), and Krishnendu Chakrabarty (Arizona State University, USA)</i>	
TriplePlay: Enhancing Federated Learning with CLIP for Non-IID Data and Resource Efficiency .....	1474
<i>Ahmed Imteaj (Southern Illinois University, USA; Security, Privacy and Intelligence for Edge Devices Laboratory (SPEED Lab)), Md Zarif Hossain (Southern Illinois University, USA; Security, Privacy and Intelligence for Edge Devices Laboratory (SPEED Lab)), Saika Zaman (Southern Illinois University, USA; Security, Privacy and Intelligence for Edge Devices Laboratory (SPEED Lab)), and Abdur R. Shahid (Southern Illinois University, USA)</i>	
Computer Vision Based Neurology Brain Activity Rejection Architecture and Implementation ....	1481
<i>Zag ElSayed (University of Cincinnati, USA), Makoto Miyakoshi (Cincinnati Children's Hospital Medical Center, USA), Nathan Suer (Cincinnati Children's Hospital Medical Center, USA), Craig Erickson (Cincinnati Children's Hospital Medical Center, USA), Grace Westerkamp (Cincinnati Children's Hospital Medical Center, USA), Ernest Pedapati (Cincinnati Children's Hospital Medical Center, USA), and Jack Yanchen Liu (Cincinnati Children's Hospital Medical Center, USA)</i>	
Variational Encoder Based Synthetic Alzheimer's Data Generation for Deep Learning, XGBoost and Statistical Survival Analysis .....	1488
<i>Henry Musto (University of London, United Kingdom), Daniel Stamate (University of London; The University of Manchester, United Kingdom), and Daniel Stahl (King's College London, United Kingdom)</i>	
Dynamical System Autoencoders .....	1496
<i>Shiquan He (Worcester Polytechnic Institute, USA), Randy Paffenroth (Worcester Polytechnic Institute, USA), Olivia Cava (Worcester Polytechnic Institute, USA), and Cate Dunham (Worcester Polytechnic Institute, USA)</i>	
Using Deep Neural Networks to Quantify Parking Dwell Time .....	1504
<i>Marcelo Eduardo Marques Ribas (Universidade Federal do Paraná, PR - Brazil), Heloisa Benedet Mendes (Universidade Federal do Paraná, PR - Brazil), Luiz Oliveira (Universidade Federal do Paraná, PR - Brazil), Luiz A. Zanlorensi (DeepNeuronic, Portugal), and Paulo Ricardo Lisboa de Almeida (Universidade Federal do Paraná, PR - Brazil)</i>	

Zero-Shot Detection and Sanitization of Data Poisoning Attacks in Wearable AI Using Large Language Models .....	1510
<i>Malithi Mithsara Wanniarachchi Kankanamge (Southern Illinois University, USA), Abdur Rahman Bin Shahid (Southern Illinois University, USA), and Ning Yang (Southern Illinois University, USA)</i>	
Securing 3D Deep Learning Models: Simple and Effective Defense Against Adversarial Attacks...	1516
<i>Rosina F. Kharal (University of Waterloo, Canada), Saif Al-Din Ali (Wilfrid Laurier University, Canada), Usama Mohiuddin (Wilfrid Laurier University, Canada), and Samir El Sayed (University of Waterloo, Canada)</i>	
The Innate Curiosity in the Multi-Agent Transformer .....	1523
<i>Arthur S. Williams (Lawrence Livermore National Laboratory, USA), Alister Maguire (Lawrence Livermore National Laboratory, USA), Braden Soper (Lawrence Livermore National Laboratory, USA), and Daniel Merl (Lawrence Livermore National Laboratory, USA)</i>	
Data-Driven Estimation of Flowing Bottom-Hole Pressure in Petroleum Wells Using Long Short-Term Memory .....	1530
<i>Mateus de Araujo Fernandes (Petrobras, Brazil), Eduardo Gildin (Texas A&amp;M University, USA), and Marcio Augusto Sampaio (University of São Paulo, Brazil)</i>	
Training Deep Neural Classifiers with Soft Diamond Regularizers .....	1538
<i>Olaoluwa Adigun (Signal and Image Processing Institute, California) and Bart Kosko (Signal and Image Processing Institute, California)</i>	
Tri-Level Optimization for Gradient-Based Neural Architecture Search .....	1546
<i>Sarwat Ali (University of Kashmir, India) and M. Arif Wani (University of Kashmir, India)</i>	

## Special Session 1: Deep Learning and Applications (Short Papers)

Predicting Vehicle Impact Severity With Deep Neural Network for Reinforcement Learning Based Autonomous Vehicle Simulators .....	1553
<i>Martin Holen (University of Agder), Svitlana Rogovchenko (University of Agder), Gulshan Noorumar (University of Agder; Institute for Energy Technology, Norway), and Morten Goodwin (University of Agder)</i>	
An Innovative Approach for Human Activity Recognition Based on a Multi-Head Attention Mechanism .....	1559
<i>Hussien AbdelRaouf (Augusta University, USA), Mahmoud Abouyoussef (University of Central Arkansas, USA), and Mohamed I. Ibrahim (Augusta University, USA)</i>	
A Few-Shot Learning Approach for Sound Source Distance Estimation Using Relation Networks	1564
<i>Amirreza Sobhdel (Urmia University, Iran), Roozbeh Razavi-Far (University of New Brunswick, Canada), and Vasile Palade (Coventry University, UK)</i>	
Action Selection in Reinforcement Learning with Upgoing Policy Update .....	1570
<i>Xiaoning Zhao (Waseda University, Japan) and Toshiharu Sugawara (Waseda University, Japan)</i>	

Comparative Evaluation of Deep Learning Architectures for Retinal Ganglion Cell Counting: FCRN-A, FCRN-A-v2, and U-Net .....	1576
<i>Narges Yarahmadi Gharaei (Dalhousie University, Canada), Nupur Gaikwad (Dalhousie University, Canada), Darshana Upadhyay (Dalhousie University), Srinivas Sampalli (Dalhousie University, Canada), Balwantray C. Chauhan (Dalhousie University, Canada), and Aliénor J. Jamet (Dalhousie University, Canada)</i>	
Leveraging Multimodal Shapley Values to Address Multimodal Collapse and Improve Fine-Grained E-Commerce Product Classification .....	1582
<i>Ajibola Obayemi (University of Brighton, UK) and Khuong Nguyen (University of London, UK)</i>	
Multi-Modal AI Approach for Multi-Class Skin Disease Classification .....	1588
<i>Michela Effendie (University of Miami, USA) and Vanessa Aguiar-Pulido (University of Miami, USA)</i>	
Domain-Invariant Crop Type Mapping Using Transformer-Based Time-Frequency Feature Extraction and Adaptation for Unlabeled Target Regions .....	1593
<i>Shruti Nair (Coventry University, United Kingdom), Vasile Palade (Coventry University, United Kingdom), Sara Sharifzadeh (Swansea University, UK), and Charley Hill-Butler (Coventry University, United Kingdom)</i>	
KAN-Attn GAN: Map Generation with Kolmogorov-Arnold Networks and Attention-Based Queries Selection .....	1599
<i>Arpan Mahara (Florida International University, Miami, FL), Naphtali D. Rische (Florida International University, Miami, FL), Wenjia Wang (Florida International University, Miami, FL), and Seyed Masoud Sadjadi (Florida International University, Miami, FL)</i>	
Key Information Extraction from Invoices .....	1605
<i>Abdelkader Chihab Benamara (CSAI Lab ENGIE, France) and Rim Hantach (CSAI Lab ENGIE, France)</i>	

## Special Session 2: Machine Learning for Natural Language Processing (Regular Papers)

Tell Me More! Using Multiple Features for Binary Text Classification with a Zero-Shot Model .....	1613
<i>David Broneske (German Centre for Higher Education Research and Science Studies (DZHW), Germany), Nikhilkumar Italiya (University of Magdeburg, Germany), and Fabian Mierisch (Catholic University, Germany)</i>	
Chain-of-Factors: A Zero-Shot Prompting Methodology Enabling Factor-Centric Reasoning in Large Language Models .....	1621
<i>Musarrat Hussain (UiT The Arctic University of Norway, Norway), Ubaid Ur Rehman (Kyung Hee University, South Korea), Tri D.T. Nguyen (Kyung Hee University, South Korea), Sungyoung Lee (Kyung Hee University, South Korea), Seong Tae Kim (Kyung Hee University, South Korea), Sung-Ho Bae (Kyung Hee University, South Korea), and Jung Uk Kim (Kyung Hee University, South Korea)</i>	

Sentiment Classification on Twitter(X) Through Ensemble Deep Random Vector Functional Links .....	1628
<i>Pablo A. Henríquez (Universidad Diego Portales, Chile)</i>	
Systematical Randomness Assignment for the Level of Manipulation in Text Augmentation .....	1633
<i>Youhoo Cha (Seoul National University of Science and Technology, Republic of Korea) and Younghoon Lee (Seoul National University of Science and Technology, Republic of Korea)</i>	
LingBERT, Linguistic Knowledge Injection into Attention Mechanism Based on a Hybrid Masking Strategy .....	1639
<i>Toufik Mechouma (University of Quebec in Montreal, Canada), Ismail Biskri (University of Quebec in Trois-Rivières, Canada), and Serge Robert (University of Quebec in Montreal, Canada)</i>	
Using LLMs to Establish Implicit User Sentiment of Software Desirability .....	1645
<i>Sherri Weitt-Harms (Creighton University, USA), John D. Hastings (Dakota State University, USA), and Jonah Lum (Creighton University, USA)</i>	
Toward Robust Generative AI Text Detection: Generalizable Neural Model .....	1651
<i>Harika Abburi (Deloitte &amp; Touche Assurance &amp; Enterprise Risk Services India Private Limited, India), Nirmala Pudota (Deloitte &amp; Touche Assurance &amp; Enterprise Risk Services India Private Limited, India), Balaji Veeramani (Deloitte &amp; Touche LLP, USA), Edward Bowen (Deloitte &amp; Touche LLP, USA), and Sanmitra Bhattacharya (Deloitte &amp; Touche LLP, USA)</i>	
Using Transformers for Emotion Recognition in Bangla Text: A Comparative Study of MultiBERT and BanglaBERT with Data Augmentation .....	1657
<i>Nabarun Halder (Independent University Bangladesh, Bangladesh), Tanjina Piash Proma (Independent University Bangladesh, Bangladesh), Jahanggir Hossain Setu (Independent University Bangladesh, Bangladesh), Arafat Noor (University of Louisiana at Lafayette, USA), Ashraful Islam (Independent University Bangladesh, Bangladesh), and M. Ashraful Amin (Independent University Bangladesh, Bangladesh)</i>	
Detecting Cyberbullying in Visual Content: A Large Vision-Language Model Approach .....	1663
<i>Jaden Mu (East Chapel Hill High School), David Cong (Williamsville East High School), Helen Qin (Thomas Jefferson High School for Science and Technology), Ishan Ajay (John Glenn School), Keyan Guo (University at Buffalo), Nishant Vishwamitra (University of Texas at San Antonio), and Hongxin Hu (University at Buffalo)</i>	

Domain-Specific Retrieval-Augmented Generation Using Vector Stores, Knowledge Graphs, and Tensor Factorization .....	1669
<i>Ryan Barron (University of Maryland Baltimore County; Theoretical Division, Los Alamos National Laboratory, USA), Vessalin Grantcharov (University of New Mexico), Selma Wanna (University of Texas at Austin; Advanced Research in Cyber Systems, Los Alamos National Laboratory, USA), Maksim Eren (University of Maryland Baltimore County; Advanced Research in Cyber Systems, Los Alamos National Laboratory, USA), Manish Bhattarai (Theoretical Division, Los Alamos National Laboratory, USA), Nicholas Solovyyev (Theoretical Division, Los Alamos National Laboratory, USA), George Tompkins (Analytics, Intelligence and Technology Division, Los Alamos National Laboratory, USA), Charles Nicholas (University of Maryland Baltimore County; Advanced Research in Cyber Systems, Los Alamos National Laboratory, USA), Kim Rasmussen (Theoretical Division, Los Alamos National Laboratory, USA), Cynthia Matuszek (University of Maryland Baltimore County; Advanced Research in Cyber Systems, Los Alamos National Laboratory, USA), and Boian Alexandrov (Theoretical Division, Los Alamos National Laboratory, USA)</i>	
Empathetic Reflective Response Generation: Towards Conversation Models for Online Mental Health Support .....	1677
<i>Tootiya Giyahchi (University of California, USA), Cornelia Pechmann (University of California, USA), and Ian Harris (University of California, USA)</i>	
LLM-Based Sign Language Production .....	1685
<i>Wellington Silveira (Federal University of Rio Grande, Brazil), Luca Mendonça (Federal University of Rio Grande, Brazil), and Rodrigo de Bem (Federal University of Rio Grande, Brazil)</i>	

### **Special Session 3: Machine Learning for Predictive Models in Engineering Applications (Regular Papers)**

Towards Highly Efficient Anomaly Detection for Predictive Maintenance .....	1691
<i>Simon Klüttermann (TU Dortmund University, Germany; Lamarr Institute for Machine Learning and Artificial Intelligence, Germany), Vanlal Peka (TU Dortmund University, Germany), Philipp Doeblner (TU Dortmund University, Germany), and Emmanuel Müller (TU Dortmund University, Germany; Lamarr Institute for Machine Learning and Artificial Intelligence, Germany; Research Center Trustworthy Data Science and Security, Germany)</i>	
An Evaluation and Comparison of Machine Learning Methods for Prediction of Lubricant Film Thickness .....	1697
<i>Caleb Combs (Rice University, USA), Edgar Avalos Gauna (Rice University, USA), and C. Fred Higgs (Rice University, USA)</i>	

On the Effectiveness of Heterogeneous Ensemble Methods for Re-Identification .....	1705
<i>Simon Klüttermann (TU Dortmund University, Germany; Lamarr Institute for Machine Learning and Artificial Intelligence, Germany), Jérôme Rutinowski (TU Dortmund University, Germany; Lamarr Institute for Machine Learning and Artificial Intelligence, Germany), Frederik Polachowski (TU Dortmund University, Germany), Anh Nguyen (TU Dortmund University, Germany), Britta Grimme (Paderborn University, Germany), Moritz Roidl (TU Dortmund University, Germany; Lamarr Institute for Machine Learning and Artificial Intelligence, Germany), and Emmanuel Müller (TU Dortmund University, Germany; Lamarr Institute for Machine Learning and Artificial Intelligence, Germany; Research Center Trustworthy Data Science and Security, Germany)</i>	
High-Speed Deformation Prediction in Selective Laser Melting Using Context-Adaptive Neural Networks .....	1712
<i>Mathieu Vandecasteele (Ghent University – imec, Belgium), Domenico Iuso (University of Antwerp, Belgium), Milad Hamidi Nasab (MaPS - Department of Mechanical Engineering, KU Leuven, Belgium), Dries Verhees (Flanders MAKE, Belgium), Joaquim Sanctorum (University of Antwerp, Belgium), Mohsen Nourazar (Ghent University – imec, Belgium), Abdellatif Bey-Temsamani (Flanders MAKE, Belgium), and Brian Booth (Ghent University – imec, Belgium)</i>	
AssemAI: Interpretable Image-Based Anomaly Detection for Manufacturing Pipelines .....	1720
<i>Renjith Prasad (University of South Carolina, USA), Chathurangi Shyalika (University of South Carolina, USA), Fadi El Kalach (University of South Carolina, USA), Revathy Venkataramanan (University of South Carolina, USA), Ramtin Zand (University of South Carolina, USA), Ramy Harik (Clemson University, USA), and Amit Sheth (University of South Carolina, USA)</i>	
Brazilian free-Energy Market mid- and Long-Term Forecasting Using Multi-Source Ensemble Solution .....	1728
<i>Sérgio B. Júnior (Volt Robotics, Brazil; University of São Paulo, Brazil), Saulo M. Mastelini (Volt Robotics, Brazil), Marcos B. S. Paula (Volt Robotics, Brazil), Moisés R. Santos (University of Porto, Portugal), Ewerton Guarnier (Volt Robotics, Brazil), Donato S. Filho (Volt Robotics, Brazil), Maria E. C. M. Santos (Norte Energia S.A., Brazil), Thaina R. Fernandes (Norte Energia S.A., Brazil), and Victor C. V. Rosa (Norte Energia S.A., Brazil)</i>	
Fusion of Real and Synthetic Subtracted Contrast-Enhanced Mammograms for Enhanced Tumor Detection .....	1736
<i>Fatima-Zahrae Nakach (Mohammed VI Polytechnic University, Morocco), Ali Idri (Mohammed VI Polytechnic University, Morocco), and Apostolia Tsirikoglou (Karolinska Institutet, Sweden)</i>	
iPEERS: A Multi-Layered Expert Recommender System for Enhanced Customer Support .....	1741
<i>Ashkan Ebadi (Digital Technologies Research Centre, National Research Council Canada, Canada)</i>	



Harnessing Machine Learning and Stock Market Techniques for Signal Detection in Underwater Sensing Technologies .....	1747
<i>Ashkan Ebadi (Digital Technologies Research Centre, National Research Council Canada, Canada), Alain Auger (S&amp;T Foresight and Risk Assessment Unit, Defence Research and Development Canada, Canada), and Yvan Gauthier (Digital Technologies Research Centre, National Research Council Canada, Canada)</i>	
Advancing Energy Monitoring: Deep Learning for Automated Non-Smart Gas Meter Readings ...	1753
<i>Nastaran Enshaei (Concordia University, Canada), Stéphane Tremblay (Digital Technologies Research Centre, National Research Council Canada, Canada), Patrick Paul (Digital Technologies Research Centre, National Research Council Canada, Canada), and Ashkan Ebadi (Digital Technologies Research Centre, National Research Council Canada, Canada)</i>	
Aircraft Engine Remaining Useful Life (RUL) Prediction Using Machine Learning .....	1759
<i>Michael Kimollo (University of North Florida) and Xudong Liu (University of North Florida)</i>	
Hierarchical Supervised Monte Carlo Ensemble Learning .....	1764
<i>Ziauddin Ursani (University of Liverpool, United Kingdom), Dmytro Antypov (University of Liverpool, United Kingdom), Katie Atkinson (University of Liverpool, United Kingdom), Judith Clymo (University of Liverpool, United Kingdom), Matthew Dyer (University of Liverpool, United Kingdom), Matthew Rosseinsky (University of Liverpool, United Kingdom), Sven Schewe (University of Liverpool, United Kingdom), and Andriy Vasylenko (University of Liverpool, United Kingdom)</i>	
Enhancing Pipeline Monitoring: Optimizing Window Size with Monte Carlo Search and CB-AttentionNet .....	1772
<i>Sahar Khazali (University of Calgary, Canada), Tariq Al Shoura (University of Calgary, Canada), Ehsan Jalilian (Hifi Engineering, Canada), and Mohammad Moshirpour (University of California, US)</i>	
A Game-Theoretic Framework for Approximation with Soft Sets .....	1780
<i>Chenqi Li (University of Regina, Canada) and Jingtao Yao (University of Regina, Canada)</i>	

### **Special Session 3: Machine Learning for Predictive Models in Engineering Applications (Short Papers)**

Clustered Federated Learning with Non-IID Data: Mitigating Accuracy Overestimates Through Hold-out Model Selection and Evaluation .....	1786
<i>Davoud Gholamiangonabadi (Western University, Canada) and Katarina Grolinger (Western University, Canada)</i>	

Domain Contextual and Relational Graph Model for Predictive Maintenance .....	1792
<i>Robert Schiller (Deloitte &amp; Touche LLP, USA), Trupti Chavan (Risk Services India Private Limited, India), Akshay Kakkar (Risk Services India Private Limited, India), Viraj E (Risk Services India Private Limited, India), Don Williams (Deloitte Transactions and Business Analytics LLP, USA), Derek Snaidauf (Deloitte Transactions and Business Analytics LLP, USA), Edward Bowen (Deloitte &amp; Touche LLP, USA), Deepak Mittal (Risk Services India Private Limited, India), and Sunil R. Tiyyagura (Risk Services India Private Limited, India)</i>	
Mixture of Projection Experts for Multivariate Long-term Time Series Forecasting .....	1798
<i>Hao Niu (KDDI Research, Inc., Japan), Guillaume Habault (KDDI Research, Inc., Japan), Defu Cao (University of Southern California, United States), Yizhou Zhang (University of Southern California, United States), Roberto Legaspi (KDDI Research, Inc., Japan), Huy Quang Ung (KDDI Research, Inc., Japan), James Enouen (University of Southern California, United States), Shinya Wada (KDDI CORPORATION, Japan), Chihiro Ono (KDDI Research, Inc., Japan), Atsunori Minamikawa (KDDI Research, Inc., Japan), and Yan Liu (University of Southern California, United States)</i>	
Localized Recommendation in Assembly Modeling: Employing GNNs for Targeted Part Placement ....	1804
<i>Carola Lenzen (University of Augsburg, Germany) and Wolfgang Reif (University of Augsburg, Germany)</i>	

## Special Session 4: Quantum Machine Learning Algorithms and Applications (Regular Papers)

Hierarchical Learning for Training Large-Scale Variational Quantum Circuits .....	1810
<i>Hrant Gharibyan (BlueQubit Inc., USA; Institute for Quantum Information and Matter, USA), Vincent Su (BlueQubit Inc., USA; University of California, USA), and Hayk Tepanyan (BlueQubit Inc., USA)</i>	
Mitigating the Effects of Concept Drift from Data Streams in Quantum Machine Learning .....	1815
<i>Travis Lee (Tennessee Technological University, USA), Muhammad Ismail (Tennessee Technological University, USA), and Samuel Yen-Chi Chen (Wells Fargo, USA)</i>	
Utilizing a Hybrid Matrix Product State and Variational Quantum Circuit Architecture for the Detection of Kidney Diseases .....	1821
<i>Vidur Reddy Jannapureddy (Robbinsville High School, USA), Shinjae Yoo (Brookhaven National Laboratory, USA), and Huan-Hsin Tseng (Brookhaven National Laboratory, USA)</i>	

## Special Session 4: Quantum Machine Learning Algorithms and Applications (Short Papers)

Quantum Machine Learning for Computer Vision: A Survey .....	1827
<i>Md Majedul Islam (Kennesaw State University, USA) and Jing Selena He (Kennesaw State University, USA)</i>	

## Special Session 5: Machine Learning for Earth Observation (Regular Papers)

Towards Multi-Class Open-set Recognition by Use of Lower Dimensional Latent Space Embeddings .....	1833
<i>John Warner (Naval Center for Space Technology, US Naval Research Laboratory, USA) and Vishal Patel (Johns Hopkins University, USA)</i>	
Detecting Important Drivers of Gridded Population Modeling With Machine Learning .....	1844
<i>Viswadeep Lebakula (Geospatial Science and Human Security Division, Oak Ridge National Laboratory, USA), Daniel Adams (Geospatial Science and Human Security Division, Oak Ridge National Laboratory, USA), Justin Epting (Geospatial Science and Human Security Division, Oak Ridge National Laboratory, USA), Clinton Stipek (Geospatial Science and Human Security Division, Oak Ridge National Laboratory, USA), and Marie Urban (Geospatial Science and Human Security Division, Oak Ridge National Laboratory, USA)</i>	
Predicting Particulate Matter Values in Metropolitan Areas Using Machine Learning .....	1852
<i>Andrés Leiva-Araos (University of North Florida, USA), Tushya Vemuri (University of North Florida, USA), David Mena (University of North Florida, USA), and Xudong Liu (University of North Florida, USA)</i>	
Characterizing the Impact of Common Electro-Optical Sensor Anomalies on Maritime Image Classifiers .....	1858
<i>Sean Kim (Naval Center for Space Technology, US Naval Research Laboratory, USA), John Warner (Naval Center for Space Technology, US Naval Research Laboratory, USA), Quinton Davidson (Naval Center for Space Technology, US Naval Research Laboratory, USA), and Michael Tietz (Naval Center for Space Technology, US Naval Research Laboratory, USA)</i>	
Pragmatic and ML Approaches to Backfilling Missing Data Within Time Series Datasets .....	1865
<i>Taylor Brown (Fayetteville State University, USA), Matthew Wilkerson (Fayetteville State University, USA), Brian Blanton (RENCI/UNC-Chapel Hill, USA), and Sambit Bhattacharya (Fayetteville State University, USA)</i>	

## Workshop 1: Human Aligned AI: Towards Algorithms that Humans Can Trust

Toward Measuring and Understanding the Overvalidation Phenomena .....	1872
<i>Fabrizio Mori (University of Genoa, Italy), Antonio Emanuele Cinà (University of Genoa, Italy), Fabio Roli (University of Genoa, Italy), Davide Anguita (University of Genoa, Italy), and Luca Oneto (University of Genoa, Italy)</i>	
Mitigating Unfair Regression in Machine Learning Model Updates .....	1878
<i>Irene Buselli (University of Genoa), Anna Pallarès López (University of Genoa), Eduard Martín Jiménez (University of Genoa), Davide Anguita (University of Genoa), Fabio Roli (University of Genoa), and Luca Oneto (University of Genoa)</i>	

Increasing Adversarial Robustness Around Uncertain Boundary Regions with Amodal Segmentation .....	1885
<i>Sheila Alemany (Florida International University), Niki Pissinou (Florida International University), and Brian Yang (University of Michigan)</i>	
Unifying Robust Activation Functions for Reduced Adversarial Vulnerability with the Parametric Generalized Gamma Function .....	1892
<i>Sheila Alemany (Florida International University), Emma Worthington (University of Colorado Boulder), Alberto Dominguez (National Science Foundation Research Experience for Teachers Fellow), Ilan Grapel (National Science Foundation Research Experience for Teachers Fellow), and Niki Pissinou (Florida International University)</i>	
An Efficient Approach For Enhancing GenAI Trustworthiness .....	1900
<i>Aviv Yehezkel (Tel-Aviv, Israel)</i>	

### **Workshop 3: Green Algorithms: Shaping a Sustainable World with AI Innovation**

Minimizing Hybrid Electric Power Generation Costs Using Smart Power Grid Solution .....	1906
<i>Vijen Mehta (San Jose State University, USA), Kunal Agrawal (San Jose State University, USA), Charan Teja Madabathula (San Jose State University, USA), and Ming-Hwa Wang (San Jose State University, USA)</i>	
Mutual Information-Based Feature Selection for Federated Learning Environments .....	1914
<i>Samuel Suárez-Marcote (Universidade da Coruña, Spain), Laura Morán-Fernández (Universidade da Coruña, Spain), and Verónica Bolón-Canedo (Universidade da Coruña, Spain)</i>	
Iterative Feedback-Enhanced Prompting: A Green Algorithm for Reducing Household Food Waste.....	1920
<i>Yuekai Wang (Rancho Bernardo High School, USA)</i>	
Dynamic Prediction of Reblowing Necessity in BOF Steelmaking .....	1924
<i>Maryam Khaksar Ghalati (University of Leicester, UK), Jianbo Zhang (University of Leicester, UK), Amadi Gebril Udu (University of Leicester, UK), and Hongbiao Dong (University of Leicester, UK)</i>	
MCMN Deep Learning Model for Precise Microcrack Detection in Various Materials .....	1928
<i>Fatahlla Moreh (Kiel University, Germany), Yusuf Hasan (Aligarh Muslim University, India), Zarghaam Haider Rizvi (University of Waterloo, Canada), Frank Wuttke (Kiel University, Germany), and Sven Tomforde (Kiel University, Germany)</i>	

### **Author Index**