Toronto time	Tuesday, August 6	Wednesday, August 7			Thursday, August 8		Friday, August 9
8:00 - 8:30			Registration & Breakfast		Registration & Breakfast		Registration & Breakfast
8:30 - 9:00					COMP1: Computer and Software Engineering and Applications CR1: Control, Robotics, and Autonomous Systems ML3: Machine Learning, Data Analytics, Artificial Intelligence and Computer Vision PE3: Power Engineering		COM3: Communications and Networking and Signal Processing CRA2-COMP2: Control, Robotics, and Autonomous Systems - Computer and Software Engineering ML6: Machine Learning, Data Analytics, Artificial Intelligence and Computer Vision PE6: Power Engineering
9:00 - 9:30	Registration	Opening Remarks					
9:30 - 10:00		Keynote Speaker: Dr. François Pomerleau, Laval University, Canada					
10:00 - 10:30	T1: Generative AI for Energy: Basics and Applications T2: When SDN Meets Blockchain to Enable Inter-Operator Networks						
10:30 - 11:00		Coffee Break			Coffee Break		Coffee Break
11:00 - 12:00		CD1: Circuits, Devices, Photonics and Power Electronics ML1: Machine Learning, Data Analytics, Artificial Intelligence and Computer Vision PE1: Power Engineering		AI Debate - Panel	Keynote Speaker: Dr. Octavia Dobre, Memorial University, Canada		Keynote Speaker: Dr. Amr S. Helmy, University of Toronto, Canada
12:00 - 12:30	Lunch				NSERC presentation		Best Paper & Poster Awards' Session
12:30 - 13:00				Lunch	Lunch		Lunch
13:00 - 13:30	T3: Co-Packaged Si Photonics; Opportunities						
13:30 - 14:30		Special Sessions:	Poster Session		WIE Panel	CD3: Circuits,	Extended Break / Campus Tour

	and Challenges T4: *A Smart Healthcare Systems by Using Secure Data Communication, AI Data Generative and Regulation and Compliance Standards*	*History* CD2: *Circuits, Devices, Photonics and Power Electronics* COM1: *Communications and Networking and Signal Processing*				*Devices, Photonics and Power Electronics* ML4: *Machine Learning, Data Analytics, Artificial Intelligence and Computer Vision* PE4: *Power Engineering*	
14:30 - 15:00							ML7: *Machine Learning, Data Analytics, Artificial Intelligence and Computer Vision* ML8-COM4: *Machine Learning / Communications and Networking* PE7: *Power Engineering*
15:00 - 15:30	*Coffee Break*			*Robotics Panel*	*Special Session: Education*		
15:30 - 16:00		*Coffee Break*			*Coffee Break*		
16:00 - 16:30	T5: *Quantum Computing Era: Opportunities, Challenges, & Future Prospects* T6: *A Wireless, Biomedical Sensing Platform for the Internet of Things (IoT): Training Case Study*	COM2: *Communications and Networking and Signal Processing* ML2: *Machine Learning, Data Analytics, Artificial Intelligence and Computer Vision* PE2: *Power Engineering*			*Next generation communications panel*	CD4: *Circuits, Devices, Photonics and Power Electronics* ML5: *Machine Learning, Data Analytics, Artificial Intelligence and Computer Vision* PE5: *Power Engineering*	
16:30 - 17:30							
17:30 - 18:00							
18:00 - 19:00							
19:00 - 22:00					*Gala Dinner*		

Tuesday, August 6

Tuesday, August 6 9:00 - 10:00

Registration

Room: Biosciences

Tuesday, August 6 10:00 - 12:00

T1: Generative AI for Energy: Basics and Applications

Room: Biosciences 1101

T2: When SDN Meets Blockchain to Enable Inter-Operator Networks

Room: Biosciences 1102

Tuesday, August 6 12:00 - 13:00

Lunch

Room: Biosciences

Tuesday, August 6 13:00 - 15:00

T3: Co-Packaged Si Photonics; Opportunities and Challenges

Room: Biosciences 1101

T4: A Smart Healthcare Systems by Using Secure Data Communication, AI Data Generative and Regulation and Compliance Standards

Room: Biosciences 1102

Tuesday, August 6 15:00 - 15:30

Coffee Break

Room: Biosciences

Tuesday, August 6 15:30 - 17:30

T5: Quantum Computing Era: Opportunities, Challenges, & Future Prospects

Room: Biosciences 1101

T6: A Wireless, Biomedical Sensing Platform for the Internet of Things (IoT): Training Case Study

Room: Biosciences 1102

Wednesday, August 7

Wednesday, August 7 8:00 - 9:00

Registration & Breakfast

Room: Biosciences

Wednesday, August 7 9:00 - 9:30

Opening Remarks

Room: Biosciences 1101

Wednesday, August 7 9:30 - 10:30

Keynote Speaker: Dr. François Pomerleau, Laval University, Canada

Room: Biosciences 1101

Wednesday, August 7 10:30 - 11:00

Coffee Break

Room: Biosciences Atrium

Wednesday, August 7 11:00 - 12:30

AI Debate - Panel

Room: Mitchell Hall

CD1: Circuits, Devices, Photonics and Power Electronics

Room: Biosciences 2109
Chair: Hany Farag

An All Digital PLL in 22-nm FD SOI for Hardware Accelerated Embedded Systems
Sepideh Asgari, Amirhossein Mohammadpanah, Ebrahim Ghafar-Zadeh and Sebastian Magierowski

A Medium Frequency Transformer-Based Hybrid Converter for Wind Energy Conversion System
Ling Xing, Qiang Wei and Yun Wei Li

Multimode Fiber Image Transmission via Cross-Modal Knowledge Distillation

Weixuan Lin, Di Wu and Benoit Boulet

Enhancing Thermal Security of 3D-SiP Systems Through Thermal Digital Twin (TDT)

Amrou Zyad Benelhaouare, Aziz Oukaira, Maroua Oumlaz and Ahmed Lakhssassi

ML1: Machine Learning, Data Analytics, Artificial Intelligence and Computer Vision

Room: Biosciences 1101
Chair: Xiaodan Zhu

On the Effectiveness of Training Objectives of Pretrained Models for Inertial Sensor Data
Paul Quinlan, Qingguo Li and Xiaodan Zhu

Extracting 3D Prostate Geometry from 2D Optically-Tracked Transrectal Ultrasound Images
Colton Barr, Leah Groves, Tamas Ungi, Robert Siemens, Babacar Diao, Ron Kikinis, Parvin Mousavi and Gabor Fichtinger

TAME-Faster R-CNN Model for Image-Based Tea Diseases Detection
Tiancheng Liu, Ling Bai, Rakiba Rayhana, Xiuguo Zou and Zheng Liu

Mixture of Prompt Experts for Natural Language Inference
Zi'ou Zheng and Xiaodan Zhu

PE1: Power Engineering

Room: Biosciences 1102
Chair: Luiz Lopes

Optimal Selection and Operation of DER in Microgrids, Analysis of Hydrogen for Transportation and Stationary Applications
Isnel Ubaque Diaz, Wendell de Queiróz Lamas and Luiz A. C. Lopes

Improved Fixed Time Sliding Mode Observer for Sensorless Operation of Permanent Magnet Synchronous Generator Wind Turbine
Vahid Teymoori, Hossein Dastres, Maarten Kamper and Rong-Jie Wang

Cyberattack Classification in Smart Grid Distribution Substations Using a Novel Ensemble Bagging Learning Technique
Victor Ijeh and Walid Morsi

Multi-Agent Safe Gated Reinforcement Learning Based Real-Time Volt/Var Optimization for Modern Distribution Networks
Sarah Allahmoradi and Xiaodong Liang

Wednesday, August 7 12:30 - 13:30

Lunch

Room: Mitchell Hall

Wednesday, August 7 13:30 - 17:30

Poster Session

Room: Biosciences

Chair: Hesham ElSawy

Modifying the Stiffness of Thermoplastic Polyurethane Based ECG Sensor by Liquid Bending of Silicone-Based Monomer

Shuyun Zhuo, Ravi Prakash Magisetty, Chithiravel Sundaresan, Anan Zhang, Alexandre Tessier and Shideh Kabiri Ameri

Optimized Distributed Detection over a Two Sensor Binary Gaussian MAC Network

Luca Sardellitti, Glen Takahara and Fady Alajaji

Profiling LAMMPS for GPU Disaggregation

Curtis Shorts and Ryan E Grant

Industrial Large Model: Toward A Generative AI for Industry

Jiehan Zhou, Yang Cao, Quanbo Lu, Weishan Zhang, Xin Liu and Weijian Ni

Towards Secure and Efficient Communication: Leveraging Quantum Internet Technologies

Taminder Pabla and Ajmery Sultana

MDEA: Modeling Depressive Emotions Aligned with Knowledge Graphs and Large Language Models

Jiehan Zhou, Kai Shao, Changrong Yu, Yixue Hao, Long Hu, Min Chen and Haibin Zhu

LLM4RL: Enhancing Reinforcement Learning with Large Language Models

Jiehan Zhou, Yang Zhao, Jiahong Liu, Peijun Dong, Xiaoyu Luo, Hang Tao, Shi Chang and Hanjiang Luo

Analysis of mm-Wave Wireless Networks Using Cylindrical Receiver Grids in Street Canyon Urban Areas

Samad Razaghzadeh Shabestari and Hossam S. Hassanein

Integrated Sensing and Communications for Near-Field RIS-Assisted Systems

Jiao Wu and Mohamed-Slim Alouini

Large Language Model Translation of Indigenous Languages

Cameron T Bishop, Xiaodan Zhu and Karen Rudie

Predictive Resource Usage Characterization for Extreme Edge Computing

Ruslan Kain, Yuanzhu Chen and Hossam S. Hassanein

Decomposing Complexity: Strategies for Problem Decomposition in 5G Networks and Beyond

Amr M. Zaki, Sara A. Elsayed, Khalid Elgazzar and Hossam S. Hassanein

Trajectory Optimization for Maximization of Laser Power Transfer to a Mobile UAV Through Turbulent Atmosphere

Heyou Liu, Salman Bashir and Mohamed-Slim Alouini

Personalized Statin Therapy Recommendation Platform Based on Federated Learning

Su Min Kim, Eunbeen Jo, Jose Moon, Jong-ho Kim and Hyung Joon Joo

Extreme Edge Computing Challenges on the Edge-Cloud Continuum

Sherif B. Azmy, Rawan Fayez El Khatib, Nizar Zorba and Hossam S. Hassanein

Pioneering Relative Localization for Enhanced Communication in a Radio-Acoustical Virtual Environment (RAVE)

Nour Zidi, Lokman Sboui, Pascal Giard and Jeremie Voix

Efficient Machine Learning Model Deployment in Clinical Decision Support Systems

Roxanne Alvarez, Jinghao Chen and Quynh Nguyen

ResNet50V1.5 Evaluation for GPU Disaggregation

Ethan Shama and Ryan E Grant

Asymptotic Analysis of Max-Min SINR in Downlink MISO System with Multi-Weighted Power Constraints

Shasha Liu, Mohamed-Slim Alouini, Abla Kammoun and Hayssam Dahrouj

Developing "Capture the Flag" Challenges for 5G Cyber Security Training

Zhichuan Zhao, Amina M Shafo, Peiqi Wang, Wynn Fenwick, Wahab Almuhtadi and Jordan Melzer

Proactive Handover in LEO Satellite Networks

Mohammad Massad and Hossam S. Hassanein

AI-Based MPC Controller for Energy-Efficient HVAC Systems

Mahmud Alosta, Saad Abobakr, Amine El Kaouachi and Lokman Sboui

Security Prediction and Forecasting for a Trust Management System in VANET

Mohammed A. Abdelmaguid, Hossam S. Hassanein and Mohammad Zulkernine

A Stretchable Extrusion Printed Piezoresistive Strain Sensor for Respiration Monitoring

Desmond Lagace and Cyrus Shafai

Task Allocation in Extreme Edge Computing for Complex IoT Services

Rawan F. El-Khatib, Sara A. Elsayed, Nizar Zorba and Hossam S. Hassanein

Axon: A Framework to Deploy Web Services in Seconds

Duncan John Mays

Transmission Mode Selection in RIS-Assisted Communication Networks

Ahmed Ibrahim Abdulshakoor Mohammed, Najah A. Abu Ali and Hossam S. Hassanein

Video Upscaling in Extreme Edge Environments

Ibrahim M. Amer, Sharief Oteafy and Hossam S. Hassanein

Non-Contact Far-Field Speech Detection

Omran E Farhat, Sr and Tarek Djerafi

A Dynamic Channel Emulator for CubeSat System Test and Integration

Ruizhan Shen, David G. Michelson, Yun Xing, Michael Liudeng, Charles Lee, Ari Cholakian and Kevin Zhang

ODACE-MS: A Remote Cloud-Based Testing Automation Platform for Multi-Android Devices Certification

Sundos Mojahed, Réjean Drouin and Lokman Sboui

A Semantic Compression Framework for Video Surveillance Applications

Mohamed Karaa, Raed Bahria, Hakim Ghazzai and Lokman Sboui

Development of Recommended Practices for Millimetre-Wave Channel Sounder Verification

Xin Chen and David G. Michelson

Developing Trustworthy Reinforcement Learning Applications for Next-Generation Open Radio Access Networks

Ahmad M. Nagib, Hatem Abou-Zeid and Hossam S. Hassanein

On Edge Level: The Impact of Adopting Deep Learning Techniques on Server Design

Mostafa Ibrahim Deiab, Vijayant Mehra, Hassan Shami, Yahuza Bello and Ahmed Refaey Hussein

3D Analytical Braking Force Calculation in PM Planar Actuator

Abdi Abdi Ammar

Decentralized Controllability Analysis for DC Nanogrids Based on Graph Theory

Bijan Moaveni and Suzan Eren

Physically Assuring Networking Protocols with PUFs

Adrian E. Conway

Leveraging Banking and Charge-Sharing Schemes for Low-Power Micro-Displays

Shubham Ranjan, Sheida Gohardehi and Manoj Sachdev

Electronic System for Total Current and Beam Profile Measurement in a Tandem Accelerator

Iveta Steblevska and Mark R. Daymond

Towards a Deep Reinforcement Learning Solution to the Coverage Path Planning Problem

Shaza I. Kaoud Abdelaziz, Aboelmagd Noureldin and Sidney Givigi

Data Analytics for Resort Revenue Management

Aliaksandr Nekrashevich, Yuri Levin, Guang Li and Mikhail Nediak

Using Probabilistic Planning to Model the Spread of COVID-19 in Kingston, Ontario

Bruce J Chidley and Christian Muise

Robust Reduced Multiple-Model Control Algorithm for Type 1 Diabetic Patients

Pouya Rikhtegar and Mohammad Haeri

Continuous Action Learning Automata: A Strategy for Dynamic Optimization of Invariant Kalman Filter Covariances

Paulo Ricardo Marques de Araujo, Aboelmagd Noureldin and Sidney Givigi

AI-Enhanced Robotic Telesurgical Digital Twins for 6G and Beyond

Hebatalla Ouda, Khalid Elgazzar and Hossam S. Hassanein

A Framework for Haptic Interpersonal Communication

Marufa Yeasmin Mukta and Hossam S. Hassanein

Implementing Multipathing When Using Partitioned Communication in Open MPI

Jordan M Abt and Ryan E Grant

Towards Autonomous Network Defense: Reinforcement Learning Environment for a Defense Agent

Ayesha Babar, Li Li, Adrian A Taylor and Mohammad Zulkernine

Fast Time-Of-Visibility Estimation for Real-Time Direct-To-Satellite IoT Connectivity

Mouad Jaouhari and Lokman Sboui

Impact of Multi-Colored Hydrogen System Participation in Electricity Markets

Anshul Goyal and Kankar Bhattacharya

Gait-Based Authentication in Smart Aging Care Systems
Youssef Yamout, Shahrear Iqbal, Nilesh Chakraborty and Mohammad Zulkernine

Integrating Battery Storage into Electricity Markets: Accounting for Degradation Costs and Participation Models in the IESO Wholesale Markets
Bo Yuan, Nitin Padmanabhan, Rajni Kant Bansal, Erik Ela and Sasoon Assaturian

Towards Robotic Haptic Proxies in Virtual Reality
Eric Godden and Matthew Pan

Evaluating GPT-4's Ability to Identify Additional Context
Victoria Armstrong and Christian Muise

Network Operator Identification Through RF Fingerprinting of Base Stations
Philippe Lavoie, Diala Naboulsi and Francois Gagnon

A Computational Exploration of Musical Timbre
Nichole Voegeli and David Heise

Evolution of Hough Transform for Solar Azimuth Prediction
Ben W Potter

Surface-Modified CNT-Based Nanocomposite Sensor for Biological Signal Recording
Anan Zhang and Shideh Kabiri Ameri

A Distance-Based Redundancy Mitigation Mechanism for Collective Perception in Vehicular Networks
Arjit Malik and Ahmed Hamdi Sakr

Remote Livestream-Based Stress Assessment in Telehealth Services
Israa Moustafa, Sharief Oteafy and Hossam S. Hassanein

Powering the Moon by Utilizing Lagrange Points 4 and 5
Baris Donmez and Gunes Karabulut Kurt

A New Approach to Detect and Thwart Replay Attacks on Car Remote Keyless Entry Systems from Space
Gédéon Ghislain Nkwewo Ngoufo and Gunes Karabulut Kurt

Enhancing LEO Satellite PNT Systems: Integrating Visibility Identification and Time-Division Techniques
Mazin Mogadem, Kim Khoa Nguyen and Lokman Sboui

Wednesday, August 7 13:30 - 15:30

Special Sessions: History

Room: Biosciences 2109
Chair: David G. Michelson

IEEE Museum Initiatives: Past, Present, and Future
David G. Michelson

Bootstrapping a University-Based Museum of Computing: From Unsanctioned and Unrecognized to a Stateful Home
Scott M Campbell

Development of the IEEE History of Technology Podcast
David G. Michelson, Theo Ruppel and Aidan Henrikson

Oral Interviews to Preserve the History of Engineering Accomplishments in Canada
Suzelle Barrington, Dr., Michael Bartlett and Guy Gosselin

The Development of Radio Technology by Canadian National Railways in the 1920s (and the Archival Records Available at Library and Archives Canada)
Andrew Elliott

Canadian Contributions to Microwave Radar During the Second World War
David G. Michelson

The Development of Cobalt-60 Radiation Therapy for Cancer
Murray L Macdonald and Denard Lynch

Development of the Shuttle Remote Manipulator System
David G. Michelson

CD2: Circuits, Devices, Photonics and Power Electronics

Room: Biosciences 1101

Evaluation of an Implantable Electromagnetic Microsensor for Computer-Assisted Surgery
Pavel-Dumitru Cernelev, Leah Groves, Gernot Kronreif, Tamas Ungi and Gabor Fichtinger

Towards A Computer-Aided Design Tool Dedicated to Foundry Open Gate Junction Field-Effect Transistor Sensor's Process
Abbas Panahi, Sebastian Magierowski and Ebrahim Ghafar-Zadeh

Regenerative Braking for Electric Vehicles (EVs) Using Brushless DC (BLDC) Motor and a Multi-Level Bidirectional Traction Converter
Fatemeh Nasr Esfahani, Alireza Bakhshai, Xiaodong Ma, Ahmed Darwish and Javad Ebrahimi

IoT Enabled Phase-Cut Dimmable Power Supply for LED Fixtures
Mathieu L Cote, Anthony Gonsalves, Kirti Godbole, Ameera Abboobakar and Vijay K. Sood

Piezoelectric Acoustic Vibration Sensor Based on Flexible-PCB Spin-Coated with PVDF-TrFE
Naeem Riaz

A Recursive Partitioning Approach to Improving Hypergraph Partitioning
Umair Farooq Siddiqi, Gary Grewal and Shawki Areibi

COM1: Communications and Networking and Signal Processing

Room: Biosciences 1102
Chair: Ayesha Tahreem

Impact of Hardware Impairments on Physical Layer Security of Cell-Free Massive MIMO
Ayesha Tahreem, Deeb A. D. Tubail and Salama Said Ikki

Moving Target Localization in Distributed Sensor Networks via Nuisance Variables Elimination
Mohammad Reza Jabbari, Mohammad Reza Taban and Saeed Gazor

Interference Mitigation in Automotive Radar Using ResNet Deep Neural Network Models
Abdallah S. Abdallah, Ahmed A ElSharkawy and Mohamed Waleed Fakhr

3D Near-Field Virtual MIMO-SAR Imaging Using FMCW Radar Systems at 77 GHz
Shahrokh Hamidi

Location Optimization for Tethered Aerial Base Station Serving mmWave High Altitude UAVs
Pravallika Katragunta, Michel Barbeau, Joaquin Garcia-Alfaro, Evangelos Kranakis and Venkata Srinivas Kothapalli

Optimal UAV-Trajectory Design in a Dynamic Environment Using NOMA and Deep Reinforcement Learning
Fatemeh Banaeizadeh, Michel Barbeau, Joaquin Garcia-Alfaro and Evangelos Kranakis

Wednesday, August 7 15:00 - 16:30

Robotics Panel

Room: Mitchell Hall

Wednesday, August 7 15:30 - 16:00

Coffee Break

Room: Biosciences Atrium

Wednesday, August 7 16:00 - 18:00

COM2: Communications and Networking and Signal Processing

Room: Biosciences 2109
Chair: Iyad Dayoub

Clustering of Radio Emitter Characteristics with Complex-Valued CNNs
Philippe Lavoie, Diala Naboulsi and Francois Gagnon

Exact Inverse Models for Evaluating Nonlinear Digital Predistortion Techniques
Aaron J Fonseca and Andrew K Bolstad

Experimental Assessment of Bearings Statistics for Underwater Acoustic Autonomous Systems
Jeff MacDonnell, Stephane Blouin and Aaron Webstey

Revisiting Temporal Inconsistency and Feature Extraction for Android Malware Detection
Maryam Tanha, Arunab Singh and Gavin Knoke

Understanding the Internet Backbone in the Circumpolar North with Looking Glass
Moro Bamber, Mary Kollander, Asia Brooks, Jedidiah Pollard and Pradeeban Kathiravelu

ML2: Machine Learning, Data Analytics, Artificial Intelligence and Computer Vision

Room: Biosciences 1101

Sample-Efficient Meta-RL for Traffic Signal Control
Xingshuai Huang, DI WU, Michael Jenkin and Benoit Boulet

Exploring the Effect of Age and Sex on Subject-Independent EEG-Based Emotion Recognition Methods
Camilo E. Valderrama, Anshul Sheoran and Qian Liu

An Efficient Prostate MRI Segmentation Using Deep Learning for Early Cancer Diagnosis
Syed Saad Azhar Ali

A Deep Learning Approach for Arabic Spoken Command Spotting
Haidar M. Harmanani and Mahmoud Salhab

ExE-Net: Explainable Ensemble Network for Potato Leaf Disease Classification
Tasnim Ahmed, Md. Bakhtiar Hasan, Sabbir Ahmed and Md. Hasanul Kabir

Adapting Large Language Models for Automatic Annotation of Radiology Reports for Metastases Detection
Maede Ashofteh Barabadi, Wai-Yip Geoffrey Chan, Xiaodan Zhu, Amber Simpson and Richard K. G. Do

PE2: Power Engineering

Room: Biosciences 1102

A Similarity Based Index for Stator Inter-Turn Fault Detection in Induction Motors
Mohsen Tajdinian, Behzad Behdani, Harold Chamorro and Vijay K. Sood

Design and Development of a Smart Tool for Distribution Transformer Sizing Considering Plug-In Electric Vehicles Charging
Yussef Afifi, Chantel Le, Elias Leontis, Yuanrong Zheng and Walid Morsi

Constrained Deep Reinforcement Learning for Energy Management of Community Multi-Energy Systems
Ahmed Shaban Omar Kenawy

Comparison of Grid-Following and Grid-Forming Inverters Performance for Frequency Stability in Power Systems: A Dynamic Study
Siavash Yari, Innocent Kamwa and Dmitry Rimorov

Laboratory Validation of Battery Energy Storage System as STATCOM (BESS-STATCOM) for Critical Induction Motor Stabilization
Rajiv K. Varma, Cristian Arpino and Milad Ahmadi

A Reinforcement Learning Controller Based on Double DQN for DC Microgrids with Constant Power Loads
Shima Shahnooshi, Javad Ebrahimi and Alireza Bakhshai

Thursday, August 8

Thursday, August 8 8:00 - 8:30

Registration & Breakfast

Room: Biosciences

Thursday, August 8 8:30 - 10:30

COMP1: Computer and Software Engineering and Applications

Room: Biosciences 2109

OTT Ad Insertion Using Memorability Enforcement
Fuad Shamieh, Mohamed Abu Sharkh and Hassan Hawilo

Machine Learning for Emergency Service Optimization: A Real-World Application
Junyi Zhong, Thiago Abreu, Matthieu Heidet, Sami Souihi and Françoise Lucas

Real-Time Target Tracking Library in Python
Jagrit Rai, Peter Carniglia and Sreeraman Rajan

A Novel FIG-LSTM Ensemble Machine Learning Technique for Currency Exchange Rate Forecasting
Temitope Alade and Ogonna Okafor

Mixed Boolean-Arithmetic (MBA) Obfuscation Using Permutation Polynomials on Modular Lipschitz Integers
Sichun Wang

Optimized Test Data Generation for Path Testing Using Improved Combined Fitness Function with Modified Particle Swarm Optimization Algorithm
Mohammadreza Parvizimosaed, AmirHossein Damia, Mojtaba Salehi and Alireza Bakhshai

CR1: Control, Robotics, and Autonomous Systems

Room: Medicine 132 A
Chair: Dariush Ebrahimi

Hierarchical Deep Reinforcement Learning with Cross-Attention and Planning for Autonomous Roundabout Navigation
Bennet Montgomery, Christian Muise and Sidney Givigi

Grasp Approach Under Positional Uncertainty Using Compliant Tactile Sensing Modules and Reinforcement Learning
Viral Galaiya, Thiago Eustaquio Alves de Oliveira, Xianta Jiang and Vinicius Prado da Fonseca

Efficient Routing and Charging Strategy for Electric Vehicles Considering Battery Life: A Reinforcement Learning Approach
Dariush Ebrahimi, Seyedmohammad Kashefi Mofrad, Thiago Eustaquio Alves de Oliveira and Fadi Alzhouri

Autonomous Ride-Hailing Services: A Scalable Heuristic Approach for Efficient Transportation
Dariush Ebrahimi, Shantanu Patankar, Viraj Shekhda and Fadi Alzhouri

Experiments in Decentralized Multivehicle Localization Using Ultra-Wideband Transceivers
Emily Taylor, Thomas Sears and Joshua Marshall

Terrain Classification for the Spot Quadrupedal Mobile Robot Using Only Proprioceptive Sensing
Sophie V Villemure, Jefferson Silveira and Joshua Marshall

ML3: Machine Learning, Data Analytics, Artificial Intelligence and Computer Vision

Room: Biosciences 1101

Limb Endpoint Impedance Estimation with Domain Adaption and OpenSim
Nicholas Berezny and Mojtaba Ahmadi

Multiclass False Data Injection Attacks Detection and Classification in Automatic Generation Control
Sami M. Alshareef

A Vision-Language Multimodal Framework for Detecting Hate Speech in Memes
Shahriar Ivan, Tasnim Ahmed, Sabbir Ahmed and Md. Hasanul Kabir

Massive Dimensions Reduction and Hybridization with Meta-Heuristics in Deep Learning
Rasa Khosrowshahli, Shahryar Rahnamayan and Beatrice M Ombuki-Berman

Synergy of GPT-3 Summarization and Vision-Encoder-Decoder for Chest X-Ray Captioning
Abdellah Jnaini, Hajar Homayouni and Hossein Shirazi

Toward Enhanced Brain Tumor Segmentation in MRI: An Ensemble Deep Learning Approach
Shaimaa E. Nassar, Ahmed Elnakib, Abdallah S. Abdallah and Mohamed Mohamed

PE3: Power Engineering

Room: Biosciences 1102
Chair: Andrew D MacMillan

Assessment of the Secondary Service Power System Impacts of Increasing Electrification of Vehicles and Heating in the Yukon
Bastien Letowski, Andrew D MacMillan, Simon Geoffroy-Gagnon, Geoffrey Cartwright, Jason Zrum and Michael Ross

Feasibility Review of Multilevel Converters in Electric Vehicle Chargers
Ali Rezaei Aghoy, Javad Ebrahimi, Majid Pahlevani and Alireza Bakhshai

A Tight Convex Model of Optimal Gas Flow Problem in Local Networks: Distributed Gas and Power Scheduling Application
Ali Alizadeh, Innocent Kamwa, Bo Cao and Minghui Xu

A Real-World Case Study for Smoothing Wind Power Output Using Flywheel Energy Storage

Abdallah F. El-Hamalawy, Hany Farag, Richard Medal, Cody MacNeil, Elyas Ahmed, Daniel Sohm and Ismael El-Samahy

An Automated Wavelet Generation Tool for Cyberattack Detection in Substation Automation Systems
Matthew A Oinonen and Walid Morsi

Metaheuristics Applied to the Optimal Renewable Microgrid Sizing to Supply Remote Communities
Matheus Holzbach, John Fredy Franco Baquero, Gustavo Aschidamini and Mariana Resener

Thursday, August 8 10:30 - 11:00

Coffee Break

Room: Biosciences Atrium

Thursday, August 8 11:00 - 12:00

Keynote Speaker: Dr. Octavia Dobre, Memorial University, Canada

Room: Biosciences 1101

Thursday, August 8 12:00 - 12:30

NSERC presentation

Room: Biosciences 1101

Thursday, August 8 12:30 - 13:30

Lunch

Room: Biosciences Atrium

Thursday, August 8 13:30 - 15:00

WIE Panel

Room: Biosciences 1102

Thursday, August 8 13:30 - 15:30

CD3: Circuits, Devices, Photonics and Power Electronics

Room: Biosciences 2109

Design and Implementation of a Reconfigurable Sawless Receiver
Dina Ibrahim, Mohamed Helaoui, Naser El-Sheimy and Fadhel Ghannouchi

Measurement and Modeling of GaN HEMTs Operating at 500 °C
Hao Xue, Craig Storey, Jean-Paul Noël and Ryan H Griffin

Switching Sequence Investigation for the Harmonic Performance of the X-Type Five-Level Current Source Inverter
Zijian Wang, Kaiwen Yang and Qiang Wei

Optimized FPGA-Based Small Squarers Using LUTs
Noureddine Chabini and Rachid Beguenane

Power Loss Investigation of Series-Connected Current Source Inverters with Different Modulations
Qiang Wei, Bowen Jiang and Zijian Wang

Application of Operations Research Methods in Operating Room Scheduling - a Short Survey
Gaurav Rao and Vijay Mago

ML4: Machine Learning, Data Analytics, Artificial Intelligence and Computer Vision

Room: Biosciences 1101
Chair: Mustafa Daraghmeh

Towards Improving Surgical Margins in Tumour Resection Using Mass Spectrometry Imaging
Jade Warren, Amoon Jamzad, Tamara Jamaspishvili, Rachael Iseman, Ayesha Syeda, Martin Kaufmann, John Rudan, Gabor Fichtinger, David M. Berman and Parvin Mousavi

Anomaly Detection-Based Multilevel Ensemble Learning for CPU Prediction in Cloud Data Centers
Mustafa Daraghmeh, Anjali Agarwal and Yaser Jararweh

A Comparison of Point Cloud Segmentation Models for Road Unevenness Detection and Smooth Autonomous Driving
Matthew L Sharpe, Logan D Fleck, Andrew Mun-Shimoda, Naveed Ejaz and Salimur Choudhury

Predictive Maintenance by Detection of Gradual Faults in an IoT-Enabled Public Bus
Gautam Jitendra Vira, Patrick Killeen, Tet Yeap and Iluju Kiringa

Real-Time Defect Detection Systems for Steel and Wood Inspection
Rayen Ghali, Zhor Benhafid and Sid-Ahmed Selouani

PE4: Power Engineering

Room: Medicine 132 A
Chair: Xu Zhang

A Fast and Effective Automated Wavelet-Deep Learning-Based Method to Detect Cyberattacks in Microgrids with EV Fast Charging Stations
Ahmad Abu Nassar and Walid Morsi

Impact of the Electrification of Vehicles and Integration of Solar Photovoltaic Systems on Low-Voltage Distribution Networks

Gustavo Aschidamini, Matheus Holzbach, Bradley A. Reinholz, Malcolm S. Metcalfe and Mariana Resener

Development of PHIL Testing for Evaluation of Photovoltaic Inverter at the Itaipu Technological Park
Isnel Ubaque Diaz, Guilherme Justino, Guilherme Zat, Daniel Motter, Paulo Godoy, Tales Gottlieb Jahn and Liz R. Alvarez Ferreira

Aggregation and Control of DERs in a Distribution System for the Provision of Grid Services
Ayman Uddin Mahin, Fabliha Ahmed and Geza Joos

Flexibility-Oriented Scheduling of Smart Energy Hubs Considering Integrated Demand Response Programs
Leila Bagherzadeh, Innocent Kamwa and Atieh Delavari

Geometrical Parameter Optimization of Double Rotor Axial-Flux Permanent Magnet Synchronous Motor
Koceila Cherfouh, Jason Gu, Ali Jamali-Fard and Xu Zhang

Thursday, August 8 15:00 - 15:30

Special Session: Education

Room: Biosciences 1102
Chair: Jessie Ma

Framework for Interdisciplinary Power Systems Education for Engineering and Environment Students
Jessie Ma

Interdisciplinary Education and Historical Thinking
Scott M Campbell

Thursday, August 8 15:30 - 16:00

Coffee Break

Room: Biosciences Atrium

Thursday, August 8 16:00 - 17:30

Next generation communications panel

Room: Biosciences 1102

Thursday, August 8 16:00 - 18:00

CD4: Circuits, Devices, Photonics and Power Electronics

Room: Biosciences 2109

A Second-Order ΔΣ ADC with FIR DAC for DNA Nanopore Readout Interface
Tania Moeinfard, Ebrahim Ghafar-Zadeh and Sebastian Magierowski

Fruit Fly Smoke Generation and Exposure Chamber Apparatus
Benedikt Gregor, Tye Dougherty, David van Herpt, Alexa Smith, Noel Prangley, Jake Devlin, Jordan Morelli, Nawanjani Dineshika Pathinayake, Grant Chenier, David McLagan and Maria J Aristizabal

Integrating E-Threads: Properties of Conductive Threads for Electrical Connectivity Using Computational Weaving of Smart Textiles
Ahmed Awad, Salma Ibrahim and Sara Nabil

Surrogate-Assisted Multi-Objective Design Optimization of a Lorentz Force Actuator
Ali Nazari, Armin Aghajani, Phiona Buhr, Byoungyoul Park, Miroslav Belov, Yunli Wang and Cyrus Shafai

ML5: Machine Learning, Data Analytics, Artificial Intelligence and Computer Vision

Room: Biosciences 1101
Chair: Pradeeban Kathiravelu

American Sign Language Recognition Using a Multimodal Transformer Network
Khalid Abdel Hafeez, Mazen Massoud, Thomas Menegotti, Johnathon Tannous and Sarah Wedge

Enhanced Abnormal Activity Detection: Utilizing YOLOv8 and Deep SORT with TSAI and LSTM Classifiers
Riddhi Nilesh Sanghvi, Devshi Desai and Amin Safaei

Classifying and Quantifying MRI Image Quality from DICOM Data at the Edge
Nishchal Singi, Puneet Sharma, Rochan Singh and Pradeeban Kathiravelu

Are Large Language Models General-Purpose Solvers for Dialogue Breakdown Detection? An Empirical Investigation
Abdellah A Ghassel, Xiaodan Zhu and Stephen Thomas

Expert-Guided Optimization of Ultrasound Segmentation Models for 3D Spine Imaging
Kian Hashtrudi-Zaad, Tamas Ungi, Chris Yeung, Zachary Baum, Pavel-Dumitru Cernelev, Anthony N Hage, Christopher Schlenger and Gabor Fichtinger

PE5: Power Engineering

Room: Medicine 132 A
Chair: Jessie Ma

Evaluating Solar Power Forecasting Robustness: A Comparative Analysis of XGBoost, RNN, KNN, RF, and LSTM with Emphasis on Lagged Steps, Sensitivity, and Cross-Validation Techniques
Hamed Aly and Mahmoud Kiasari

Probabilistic Multi-Objective Optimal Power Flow: A Grey Wolf Optimizer Approach Considering Load and Wind Turbine Uncertainties
Shiva Amini, Innocent Kamwa, Shabbo Nahvi and Hêmin Golpîra

Effect of Power Factor of a Synchronous Machine on Eccentricity Faults Classification Accuracies
Latifa Yusuf, Ashwin Shejwalkar and Ilamparithi Thirumarai-Chelvan

Hybrid Control Scheme for More Efficient Charging of Two Electric Vehicle Batteries Simultaneously
Afraz Ahmad and Ilamparithi Thirumarai-Chelvan

Influence of Demand Response Suppliers' Interests on Economic Demand Response
Jessie Ma

Thursday, August 8 19:00 - 22:00

Gala Dinner

Room: Ban Righ Hall

Friday, August 9

Friday, August 9 8:00 - 8:30

Registration & Breakfast

Room: Biosciences

Friday, August 9 8:30 - 10:30

COM3: Communications and Networking and Signal Processing

Room: Medicine 132 A
Chair: Iyad Dayoub

Reducing the Computational Complexity of the Volterra Series Using Permutation/Product Maps
Aaron J Fonseca, Andrew K Bolstad and Julie Dickerson

RFSNU: Reliable Forwarding Strategy in NDN Based UWSN
Ahmed Khalid, Rana Asif Rehman and Byung-Seo Kim

Boosting Edge-To-Cloud Data Transmission Efficiency with Semantic Transcoding
Murtadha Nisyif, Ahmed Refaey Hussein and Sylvester Boadi Aboagye

Enhancing Bandwidth Efficiency and Upstream Delay Reduction in Multi-Tenant Passive Optical Networks Through Adaptive Bandwidth Allocation and Merging
Kamran Ali Memon, Khalid Hussain and Khurram Qureshi

VR Headset Ransomware Attack Vulnerability
Majd Z. Tahat, William B Glisson and Baker Al Smadi

Smart Beamforming for High Mobility Millimeter-Wave Train-To-Infrastructure Networks: A Machine Learning Approach
Sameh Mabrouki, Sr., Iyad Dayoub and Marion Berbineau

CRA2-COMP2: Control, Robotics, and Autonomous Systems - Computer and Software Engineering

Room: Biosciences 2109

Chair: Pradeeban Kathiravelu

An Online Learning Framework for UAV Target Search Missions in Non-Stationary Environments

Noor Khial, Naram Mhaisen, Mohamed Mabrok and Amr Mohamed

Improvement of Image-Based Lane Marker Detection Algorithm Using Sensor Fusion

Arash Abarghooei and Mojtaba Ahmadi

An Intelligent Emotional Real-Time Learning Controller for High-Speed Lane Keeping Assist System in Autonomous Vehicle

Arash Abarghooei and Mojtaba Ahmadi

Design, Manufacturing, and Visual Servoing of a 3D-Printed Delta Robot

Zhen Gao

A Practical Solution for the Beltway Problem

Reza Nadimi

Telehealth in the Circumpolar North: A Perspective of Access and Connectivity

Pradeeban Kathiravelu and David Moxley

ML6: Machine Learning, Data Analytics, Artificial Intelligence and Computer Vision

Room: Biosciences 1101

Chair: James R Green

Sequential Domain-Adaptation Extreme Learning Machine (ELM) Combined with Principle Component Analysis (PCA) for Process Fault Diagnosis

Jiabao Yao and Qing Zhao

Image Generation Using EEG Data: A Contrastive Learning Based Approach

Yuma Sugimoto, Goragod Pongthanisorn and Genci Capi

Computer Vision Fire Hydrant Obstruction Detection System

Nader Ibrahim, Kevin Dick and James R Green

Belief Revision for Physical Robots: Opportunities and Challenges

Aaron Hunter and Dustin Daon

Exploring Common Patterns in Well-Known Metaheuristic Optimization Algorithms

Shaghayegh Niousha, Shahryar Rahnamayan, Azam Asilian Bidgoli and Javad Haddadnia

Feature Importance in the Context of Traditional and Just-In-Time Software Defect Prediction Models

Susmita Haldar and Luiz F. Capretz

PE6: Power Engineering

Room: Biosciences 1102

Normalizing Flows-Based Probabilistic Learning-Aided Distribution System State Estimation
Shahabodin Afrasiabi and Xiaodong Liang

An Updated Review and Comparison of Wind Power Ramp Detection Techniques
Maryam Mahmoudi Gharaie, Deniz Sezer and Hamidreza Zareipour

A Review of Machine Learning Approaches for Forecasting Aggregated Power Demand of Thermostatically Controlled Loads
Faezeh Bashiri, Julian Cardenas-Barrera and Eduardo Castillo Guerra

Scanning of I-V Curves of PV Generation Systems Using a Full Bridge Configuration
Reza Sangrody, Shamsodin Taheri and Ana-Maria Cretu

Non-Invasive Integrated Device for Multi-Core Cable Current Measurement Based on TMR Sensor Array
Qi Zhu, Heyang Yu, Guangchao Gen and Quanyuan Jiang

Friday, August 9 10:30 - 11:00

Coffee Break

Room: Biosciences Atrium

Friday, August 9 11:00 - 12:00

Keynote Speaker: Dr. Amr S. Helmy, University of Toronto, Canada

Room: Biosciences 1101

Friday, August 9 12:00 - 12:30

Best Paper & Poster Awards' Session

Room: Biosciences 1101

Friday, August 9 12:30 - 13:30

Lunch

Room: Biosciences Atrium

Friday, August 9 13:30 - 14:30

Extended Break / Campus Tour

Friday, August 9 14:30 - 16:30

ML7: Machine Learning, Data Analytics, Artificial Intelligence and Computer Vision

Room: Biosciences 1101

Chair: Medhat Moussa

Improving Pavement Crack Segmentation Using Attention Mechanism and Self-Gated Activation

Nusrat Jahan, Thangarajah Akilan and Tharrengini Suresh

Log Anomaly Detection by Leveraging LLM-Based Parsing and Embedding with Attention Mechanism

Asma Fariha, Vida Gharavian, Masoud Makrehchi, Shahryar Rahnamayan, Sanaa Alwidian and Akramul Azim

Exploring Long-Term Memory in Evolutionary Multi-Objective Algorithms: A Case Study with NSGA-III

Masoud Kermani Poor, Shahryar Rahnamayan, Azam Asilian Bidgoli and Mehran Ebrahimi

Evaluation of Grasp Planning Techniques for Harvesting in a Novel Greenhouse Simulation Environment

Medhat Moussa

Hemp Waste Classification Using Convolutional Neural Networks

Ahmed Badr Mahmood

Assessing the Performance of Foundation Models in Prostate Segmentation Across Different Ultrasound Modalities

Vivian Nguyen, Amoon Jamzad, Paul Wilson, Mahdi Gilany, Purang Abolmaesumi, Michael Leveridge, Robert Siemens and Parvin Mousavi

ML8-COM4: Machine Learning / Communications and Networking

Room: Biosciences 1102

A Data-Driven Environmental Sound Classification System with Acoustic Triboelectric Nanogenerators

Majid Haji Bagheri, Junyou Li, Emma Gu, Karim Habashy, Md Masud Rana, Asif Abdullah Khan, Yanguang Zhang, Gaozhi (George) Xiao, Pengcheng Xi and Dayan Ban

System-Level Design for DPCM Image Compression with SoC-FPGA Accelerator

Amin Safaei, Samira Sabeti and Morteza Masoudian

Frame Selection Methods to Streamline Surgical Video Annotation for Tool Detection Tasks

Jianming Yang, Rebecca Hisey, Joshua Bierbrier, Gabor Fichtinger, Christine Law and Matthew Holden

A New Random-Forest-Based Approach for Cyberattack Detection in Digital Substations

Kripa Jose and Walid Morsi

Enhancing Cybersecurity Through Fast Machine Learning Algorithms

Zhida Li, Wencheng Han, Yunlong Shao and Adetokunbo Makanju

Rural Alaska Towards Internet Access and Equity

Youji Seto, Hiromi Kageyama and Pradeeban Kathiravelu

PE7: Power Engineering

Room: Medicine 132 A

Optimal Design of Alkaline Based Electrolysis Hydrogen Production Plants
Abdallah F. El-Hamalawy, Hany Farag and Amir Asif

Data-Clustering Based Method for Developing Battery Behaviour CDFs for BESS Grid Integration
Yara H M H AboAhmed, Magdy Salama and Kankar Bhattacharya

Ancillary Services in North America: An Overview
Radwa Almetwally, Julian Meng and Liuchen Chang

Analyzing the Impact of Ground Resistance on Distance Relay Performance with Mho Characteristics
Mohammad Rasoulnia, Morad Yazdani, Siavash Yari, Hoang Le-Huy, Innocent Kamwa and Saeed Sanati

A Region-Wide Cost-Benefit Assessment of Residential V2G Participation in Demand Response
Khunsha Nasr, Hany Farag and Shivam Saxena

A Comparative Analysis of Perturb and Observe and Fuzzy Logic Control Methods for Maximum Power Point Tracking in Photovoltaic Systems
Kunal Vora, Shichao Liu and Hima Dhulipati