

IEEE ICMLA 2022 Conference Program

Atlantis Hotel, Nassau, The Bahamas
12-14 December 2022

Registration: Dec. 11th (6:00 pm – 8:00 pm), Dec. 12th and 13th (8:00 am – 5:00 pm), Dec. 14th (8:00 am – 1:00 pm)

Date	Time			
Dec. 12 Monday	8:15	Opening Remarks Conference Room 1		
	8:20	Keynote Talk: “Behavior Design” Geoff Gordon, Carnegie Mellon University - USA and Microsoft Research Montreal - Canada Conference Room 1		
	Parallel Sessions (20 minutes each paper)			
	9:20	<p><u>Session: Reinforcement Learning I (in-person session)</u> Conference Room 1</p> <p>Chair:</p> <p>231 Addressing Sample Efficiency and Model-bias in Model-based Reinforcement Learning <i>Anand, Akhil S; Erik Kvein, Jen; Abu-Dakka, Fares J.; Grøtli, Esten Ingar; Gravdahl, Jan Tommy</i></p> <p>336 Reinforcement Learning Based Architectures for Dynamic Generation of Smart Home Services <i>Qiu, Mingming; Najm, Elie; Sharrock, Remi; Traverson, Bruno</i></p> <p>397 Attention-based Partial Decoupling of Policy and Value for Generalization in Reinforcement Learning <i>Nafi, Nasik Muhammad; Glasscock, Creighton A; Hsu, William</i></p>	<p><u>Session: Time Series Processing (in-person session)</u> Conference Room 2</p> <p>Chair: Hichem Frigui</p> <p>82 An Empirical Evaluation of Multivariate Time Series Classification with Input Transformation across Different Dimensions <i>Pantiskas, Leonardos; Verstoep, Kees; Hoogendoorn, Mark; Bal, Henri</i></p> <p>285 TSEvo: Evolutionary Counterfactual Explanations for Time Series Classification <i>Hoellig, Jacqueline; Kulbach, Cedric; Thoma, Steffen</i></p> <p>225 PerMTL: A Multi-Task Learning Framework for Skilled Human Performance Assessment <i>Ghosh, Indrajeet; Chakma, Avijoy; Ramasamy Ramamurthy, Sreenivasan; Roy, Nirmalya; Waytowich, Nicholas</i></p>	<p><u>Session: Computer Vision I (online session)</u></p> <p>Chair: Daniel Neagu</p> <p>39 Topological Regularization for Dense Prediction <i>Fu, Deqing; Nelson, Bradley J</i></p> <p>173 A Lightweight and Fast Approach for Upper Limb Range of Motion Assessment <i>Yan, Xuke; Zhang, Linxi; Liu, Bo; Qu, Guangzhi</i></p> <p>306 Real-Time Cattle Interaction Recognition via Triple-stream Network <i>Yang, Yan; Komatsu, Mizuka; Oyama, Kenji; Ohkawa, Takenao</i></p> <p>192 Deeper Bidirectional Neural Networks with Generalized Non-Vanishing Hidden Neurons <i>Kosko, Bart; Adigun, Olaoluwa A</i></p>
	10:20	Coffee Break		
Parallel Sessions (20 minutes each paper)				
10:40	<p><u>Session: Image Processing I (in-person session)</u> Conference Room 1</p> <p>Chair: Kateryna Morozovska</p> <p>295 Leaf Tar Spot Detection Using RGB Images <i>Baireddy, Sriram; Lee, Da-Young; Gongara-Canul, Carlos; Cruz, Christian; Delp, Edward</i></p> <p>339 Recycling Material Detection</p>	<p><u>Session: ML Applications in Engineering (in-person session)</u> Conference Room 2</p> <p>Chair: Sara Sharifzadeh</p> <p>58 Structural health and intelligent monitoring of wind turbine blades with a motorized telescope <i>Carnero, Alejandro; Martin, Cristian; Diaz, Manuel</i></p> <p>61 Computer Vision Based Re-</p>	<p><u>Special Session: NLP and Text Mining I (online session)</u></p> <p>Chair: Daniel Neagu</p> <p>16 Simulating New and Old Twitter User Activity with XGBoost and Probabilistic Hybrid Models <i>Mubang, Fred; Hall, Lawrence</i></p> <p>24 Towards Emotion Cause Generation in Natural Language Processing using Deep Learning</p>	

	<p>using Convolutional Neural Network <i>Liu, Kaihua; Liu, Xudong</i></p> <p>351 Automatic Key Information Extraction from Visually Rich Documents <i>de Trogoff, Charles; Hantach, Rim; Lechuga, Gisela; Calvez, Philippe</i></p>	<p>Identification of Wooden Euro-pallets <i>Rutinowski, Jérôme; Pionzewski, Christian; Chilla, Tim; Reining, Christopher; ten Hompel, Michael</i></p> <p>244 A scalable solution to AlphaZero based Redundancy Analysis for semiconductor chips <i>Thacker, Helik Kanti; Barari, Adrita; Damini, Damini; Das, Paulami; Patankar, Akhilesh Sudhir; Jujjarapu, Sairam; Gupta, Sudhanshu; Jagannathachar, Keerthi Kiran; Yoon, Deokgu</i></p> <p>315 DeepWafer: A Generative Wafermap Model with Deep Adversarial Networks <i>Mahyar, Hamidreza; Ghalebi, Elahe; Tulala, Peter; Grusu, Radu</i></p>	<p><i>Riyadh, Md Moinuddin Sharif; Shafiq, Omair</i></p> <p>36 Information Used in Fake News Detection on Social Media. <i>Alghamdi, Jawaher; Lin, Yuqing; Luo, Suhuai</i></p> <p>347 Sentence Similarity Recognition in Portuguese from Multiple Embedding Models <i>Rodrigues, Ana C; Marcacini, Ricardo Marcondes</i></p> <p>87 A Robust Approach to Fine-tune Pre-trained Transformer-based models for Text Summarization through Latent Space Compression <i>Alam Falaki, Ala; Gras, Robin</i></p> <p>461 Bayesian Rule Ontologies For XAI Classification and Regression <i>Bart Kosko, A. Panda</i></p>
12:00	Lunch Break		
	Parallel Sessions (20 minutes each paper)		
13:30	<p><u>Session: Image Processing II (in-person session)</u> Conference Room 1</p> <p>Chair: Sara Sharifzadeh</p> <p>51 Histogram Layers for Synthetic Aperture Sonar Imagery <i>Peebles, Joshua; Zare, Alina; Dale, Jeffrey J; Keller, James</i></p> <p>155 Kernelization of Tensor Discriminant Analysis with Application to Image Recognition <i>Ozdemir, Cagri; Hoover, Randy C.; Caudle, Kyle A; Braman, Karen</i></p> <p>178 A Vision Transformer Architecture for Open Set Recognition <i>Cai, Feiyang; Zhang, Zhenkai; Liu, Jie; Koutsoukos, Xenofon</i></p> <p>170 Attention-Based Generative Neural Image Compression on Solar Dynamics Observatory <i>Zafari, Ali; Khoshkhahtinat, Atefeh; Mehta, Piyush; Nasrabadi, Nasser; Thompson, Barbara J; Da Silva, Daniel; Kirk, Michael</i></p>	<p><u>Session: Machine Learning Fundamentals I (in-person session)</u> Conference Room 2</p> <p>Chair: Tyler Cody</p> <p>65 Fair Algorithms for Hierarchical Agglomerative Clustering <i>Chhabra, Anshuman; Mohapatra, Prasant</i></p> <p>75 BlinkNet: Software-Defined Deep Learning Analytics with Bounded Resources <i>Koga, Brian; Vanderweide, Theresa; Zhao, Xinghui; Zhang, Xuechen</i></p> <p>81 Nested Multiple Instance Learning with Attention Mechanisms <i>Fuster, Saul; Engan, Kjersti; Eftestøl, Trygve</i></p> <p>91 Comparing the quality of neural network uncertainty estimates for classification problems <i>Ries, Daniel; Michalenko, Joshua; Ganter, Tyler; Baiyasi, Rashad; Adams, Jason</i></p> <p>110 Adversarial Attacks on Deep Temporal Point Process <i>Khorshidi, Samira; Wang, Bao; Mohler, George</i></p>	<p><u>Session: Reinforcement Learning II (online session)</u></p> <p>Chair: Yi Li</p> <p>114 Bootstrap Advantage Estimation for Policy Optimization in Reinforcement Learning <i>Rahman, Md Masudur; Xue, Yexiang</i></p> <p>136 Mixed Time-frame training for reinforcement learning <i>Senthilnathan, Gautham</i></p> <p>186 Interpretable Reinforcement Learning with Multilevel Subgoal Discovery <i>Ponomaryov, Denis</i></p> <p>230 Benchmarking Offline Reinforcement learning <i>Tittaferrante, Andrew; Yassine, Abdulsalam</i></p> <p>247 Safe Reinforcement Learning for LiDAR-based Navigation via Control Barrier Function <i>Song, Lixing; Ferderer, Luke; Wu, Shaoen</i></p> <p>330 Balancing Similarity-Contrast in Unsupervised Representation Learning: Evaluation with Reinforcement Learning <i>Mengistu, Menore Tekeba, Alemu, Getachew, Chevallier, Pierre, De Loor, Pierre</i></p>

15:10	Coffee Break		
	Parallel Sessions (20 minutes each paper)		
15:30	<p><u>Session: ML Applications for Society Challenges (in-person)</u></p> <p>Conference Room 1</p> <p>Chair: Xudong Liu</p> <p>275 Hawkes Process Multi-armed Bandits for Search and Rescue <i>Chiang, Wen-Hao; Mohler, George</i></p> <p>284 ACGANs Improve Chemical Sensors for Challenging Distributions <i>Moore, Alexander M; Paffenroth, Randy; Ngo, Ken; Uzarski, Joshua R</i></p> <p>395 CANBERT: A Language-based Intrusion Detection Model for In-vehicle Networks <i>Nwafor, Ebelechukwu; Olufowobi, Habeeb</i></p> <p>419 AI privacy preserving robots working in a smart sensor environment <i>Imen Chakroun, Geert Vanmeerbeeck; Roel Wuyts, Wilfried Verachtert</i></p>	<p><u>Session: Signal/Audio/Speech processing I (in-person session)</u></p> <p>Conference Room 2</p> <p>Chair: Gabriel Terejanu</p> <p>67 DDSupport: Language Learning Support System that Displays Differences and Distances from Model Speech <i>Kawamura, Kazuki; Rekimoto, Jun</i></p> <p>200 ECG Fiducial Points Localization Using a Deep Learning Model <i>Hssayeni, Murtadha D; Andalib, Arash; Singh, Rishabh; Pava, Diego; Li, Kan; Chait, Robert; Kale, Kaustubh</i></p> <p>299 Transformer-Based Speech Synthesizer Attribution in an Open Set Scenario <i>Bartusiak, Emily; Delp, Edward</i></p> <p>337 Quantifying Cognitive Load from Voice using Transformer-Based Models and a Cross-Dataset Evaluation <i>Hecker, Pascal; Kappattanavar, Arpita; Schmitt, Maximilian; Moontaha, Sidratul; Wagner, Johannes; Eyben, Florian; Schuller, Björn; Arnrich, Bert</i></p>	<p><u>Session: Image Processing III (online session)</u></p> <p>Chair: Uche Onyekpe</p> <p>174 Score-based Image-to-Image Regression with Synchronized Diffusion <i>Xin, Hao; Zhu, Michael</i></p> <p>292 Label-Free Mammalian Cell Tracking Enhanced by Precomputed Velocity Fields <i>Han, Yue; Lei, Yang; Shkolnikov, Viktor; Xin, Daisy; Barcelo, Steven; Allebach, Jan; Delp, Edward</i></p> <p>323 Super-Resolution GAN Improving YOLO's Performance Benchmark <i>Rocha, Wycor Fogos da; Azzag, Hanane; Lebbah, Mustapha; Mokraoui, Anissa</i></p> <p>151 SVTON: Simplified Virtual Try-On <i>Islam, Tasin</i></p> <p>243 Automatic counting of mounds on UAV images: combining instance segmentation and patch-level correction <i>Nikougoftar Nategh, Majid; Zgaren, Ahmed; Bouachir, Wassim; Bouguila, Nizar</i></p> <p>187 DeepRoad and DeepReject: Road Condition Recognition and Classification Under Adversarial Weather Conditions <i>Sakaino, Hidetomo; Nam, Nguyen X; Nguyen, Hoang Anh; Do, Duc; Nguyen, Bach Hoang; Gaviphatt, Natnapat</i></p> <p>372 Multi-stream Deep Residual Network for Cloud Imputation Using Multi-resolution Remote Sensing Imagery Image Processing <i>Zhao, Yifan; Yang, Xian; Vatsavai, Ranga Raju</i></p>

16:50 **Poster Sessions (in-person session):**

Coffee/tea, beverages and light food will be served during the poster session and this will function as a reception meeting for conference participants as well.

Posters will be displayed in a big room or two adjacent rooms; they are clustered below in thematic sections to encourage discussions.

Posters from main track:

16:50 **Poster Session 1 (16:50 to 17:50)**

Conference Posters Room

NLP & Text Mining

2 Cluster Management of Scientific Literature in HSTOOL

Schubert, Johan; Wickenberg-Bolin, Ulrika

31 Transfer Learning model for Social Emotion Prediction using Writers Emotions in Comments

Alsaedi, Abdullah; Thomason, Stuart; Grasso, Floriana; Brooker, Philli

124 A Neural Model for Regular Grammar Induction

Belcak, Peter; Hofer, David Nicolas; Wattenhofer, Roger

181 An Ontology-based transfer learning method improving classification of medical documents

Bruneß, Daniel; Bay, Matthias; Schulze, Christian; Guckert, Michael; Minor, Mirjam

357 Classifying the Ideological Orientation of User-Submitted Texts in Social Media

Ravi, Kamalakkannan; Vela, Adan E; Ewetz, Rickard

144 Math Chunking and Function Recognition using Deep Learning

Alshamari, Fatimah; Youssef, Abdou

Computer Vision

33 eXtending Rapid Class Augmentation (XRCA) to YOLOv3 Object Detection

Witzgall, Hanna E

72 Uncertainty Prediction for Facial Action Units Recognition under Degraded Conditions

Saito, Junya; Youoku, Sachihiro; Kawamura, Ryosuke; Uchida, Akiyoshi; Murase, Kentaro; Mi, Xiaoyu

142 On-Board Pedestrian Trajectory Prediction Using Behavioral Features

Czech, Phillip; Braun, Markus; Kressel, Ulrich; Yang, Bin

261 Real-Time Facial Emotion Detection Through the Use of Machine Learning and On-Edge Computing

Dowd, Ashley; Hashemi, Navid

135 TrADe Re-ID - Improving Person Re-Identification using Tracking and Anomaly Detection

Machaca Arcana, Luigy A; Huayta, Felix Oliver S; Huaman, Cruz, Jose Miguel; Clua, Esteban; Guerin, Joris

Image Processing

163 Deep object detection for waterbird monitoring using aerial imagery

Kabra, Krish; Xiong, Alexander; Li, Wenbin; Luo, Minxuan; Lu, William; Garcia, Raul; Singh, Dhananjay Vijay; Yu, Jiahui; Tang, Maojie; Yu, Tianjiao; Arnold, Hank; Vallery, Anna; Gibbons, Richard; Barman, Arko

237 Self-Supervised Learning in the Twilight of Noisy Real-World Datasets

Tendle, Atharva, Little, Andrew R, Scott, Stephen D, Hasan, Mohammad Rashedul

302 An Edge-based Real-Time Object Detection

Ahmadinia, Ali; Shah, Jaabaaal

319 Continuous Human Activity Recognition using Radar Imagery and Dynamic Time Warping

Mehta, Ruchita K; Palade, Vasile; Karayaneva, Yordanka; Tan, Bo; Sharifzadeh, Sara

320 XYZ-6D dataset for object segmentation and 6D pose estimation

Gouda, Anas; Ghanem, Abraham; Reining, Christopher

391 Recurrent Neural Imaging: An Evolutionary Approach for Mixed Poisson-Gaussian Image Denoising

Ranganath, Aditya; Santiago, Fabian; DeGuchy, Omar; Singhal, Mukesh; Marcia, Roummel

371 Machine Learning for Classifying Images with Motion Blur

Alvarez, Jacqueline; Garcia, Rogelio; Marcia, Roummel

387 Fast-Image2Point: Towards Real-Time Point Cloud Reconstruction of a Single Image using 3D Supervision

Zamani, AmirHossein; Aghdam, Amir G.; Ghaffari, Kamran

276 Spars Kernelized Features for Prediction of Rock's Carbon Capture using 3D X-Ray Images
Sharifzadeh, Sara

ML Applications in Engineering

69 Learning Non-linear White-box Predictors: A Use Case in Energy Systems
Wilfling, Sandra; Ebrahimi, Masoud; Alfalouji, Qamar; Schweiger, Gerald; Basirat, Mina

94 Application of Machine Learning Techniques in Temperature Forecast
Ligori Vanchi Arasu, Adrin Issai Arasu, Modani, Manish, Vadlamani, Nagabhushana Rao

56 DTCEncoder: A Swiss Army Knife Architecture for DTC Exploration, Prediction, Search and Model Interpretation
Hafeez, Abdul Basit; Alonso, Eduardo; Riaz, Atif

ML Applications for Society Challenges

113 California Wildfire Prediction using Machine Learning
Jiang, Xunfei

188 The Performance-Actionability Trade-Off in Retention Prediction at Middle School
Lavado, Susana; Mateus, Miguel; Zejnilovic, Leid

ML Applications in Health

154 Context-aware Attention U-Net for the segmentation of pores in Lamina Cribrosa using partial points annotation
Ding, Nan; Urien, Hélène; Rossant, Florence; Sublime, Jérémie; Paques, Michel

167 Lung Nodules Identification in CT Scans using Multiple Instance Learning
Safta, Wiem; Frigui, Hichem

248 On the Generalizability of ECG-based Stress Detection Models
Prajod, Pooja; Andre, Elisabeth

359 Predicting Chronic Fatigue Syndrome After Infectious Mononucleosis Using Correlations Within the Cytokine Network
Hua, Chelsea; Schwabe, Jennifer; Allen, Emma; Furst, Jacob; Raicu, Daniela; Jason, Leonard

Reinforcement Learning

27 IGN : Implicit Generative Networks
Luo, Haozheng; Wu, Tianyi; Han, Feiyu; Yan, Zhijun; Zhang, Jianfeng

134 CandyRL: A Hybrid Reinforcement Learning Model for Gameplay
Karimi, Sara; Payberah, Amir H.; Asadi, Sahar; Lorenzo, Francesco

240 Score vs. winrate in score-based games: which reward for reinforcement learning?
Pasqualini, Luca; Parton, Maurizio; Morandin, Francesco; Amato, Gianluca; Gini, Rosa; Metta, Carlo; Marchetti, Alessandro; Fantozzi, Marco

324 Flexible Exploration Strategies in Multi-Agent Reinforcement Learning for Instability by Mutual Learning
Miyashita, Yuki; Sugawara, Toshiharu

108 Hyperparameter Tuning in Offline Reinforcement Learning
Tittaferrante, Andrew; Yassine, Abdulsalam

182 Empirical analysis of the convergence of Double DQN in relation to reward sparsity
Blad, Samuel; Långkvist, Martin; Klügl, Fanziska; Loufti, Amy

353 Contingency-constrained economic dispatch with safe reinforcement learning
Eichelbeck, Michael; Markgraf, Hannah; Althoff, Matthias

Bio-medical and Pharma ML Applications

153 The impact of low-cost molecular geometry optimization in property prediction via graph neural network
Pinheiro, Gabriel Augusto; Calderan, Felipe; Da Silva, Juarez L. F.; Quiles, Marcos Goncalves

17:55 **Poster Session 2 (17:55 to 18:55)**

Conference Posters Room

ML Applications in Cyber Security

222 Separating Flows in Encrypted Tunnel Traffic
Hartl, Alexander; Fabini, Joachim; Zseby, Tanja

389 Novel Adversarial defense techniques for white-box attacks
Van Tuinen, Jason; Ranganath, Aditya; Konjevod, Goran; Singhal, Mukesh; Marcia, Roummel

122 IDPS Signature Classification with a Reject Option and the Incorporation of Expert Knowledge
Kawaguchi, Hidetoshi; Nakatani, Yuichi; Okada, Shogo

Recommendation Systems and Decision Support

217 Probabilistic Approach for Recommendation Systems

Abdalla, Nada; Forthomme, Damien

228 Predicting Customer Churn in Retailing

Sweidan, Dirar; Johansson, Ulf; Alenljung, Beatrice; Gidenstam, Anders

259 Bayesian Sequential Optimal Experimental Design for Linear Regression with Reinforcement Learning

Anderson, Loren J; Santosa, Fadil

201 One-Shot Federated Group Collaborative Filtering

Eren, Maksim E; Bhattarai, Manish; Solovyev, Nicholas; Richards, Luke; Yus, Roberto,

Nicholas, Charles, Alexandroe, Boian

214 Behavior Sequence Transformer Applied on SERP Evaluation and Model Interpretation

Xiao Yu Dong; Shen, Shen; Yifan, Wang; Jinkang, Jia; Zhang, Po

268 Few-Shot Link Prediction with Domain-Agnostic Graph Embedding

Zhu, Hao; Das, Mahashweta; Bendre, Mangesh; Wang, Fei; Yang, Hao; Hassoun, Soha

Time Series Processing

44 PARTIME: Scalable and Parallel Processing Over Time with Deep Neural Networks

Meloni, Enrico; Faggi, Lapo; Marullo, Simone; Betti, Alessandro; Tiezzi, Matteo; Gori, Marco;

Melacci, Stefano

125 W-Transformers : A Wavelet-based Transformer Framework for Univariate Time Series Forecasting

Sasal, Lén; Chakraborty, Tanujit; Hadid, Abdenour

Anomaly Detection

221 Anomaly Detection from Multilinear Observations via Time-Series Analysis and 3DTPCA

Cates, Jackson S; Hoover, Randy C.; Caudle, Kyle A; Ozdemir, Cagri

392 Unsupervised Anomaly Detection and Root Cause Analysis for Industrial Press Machine based on

Skip-Connected Autoencoder

Sun, Chenwei, Ovtcharova, Jivka

Signal/Audio/Speech Processing

89 Individualized Conditioning and Negative Distances for Speaker Separation

Sun, Tao; Abuhajar, Nidal; Gong, Shuyu; Wang, Zhewei; Smith, Charles; Wang, Xianhui; Xu, Li;

Liu, Jundong

293 Classifying Spectrographic Audio Signatures Utilizing Novel Machine Learning Architectures

Elias, Noel

329 CNN-n-GRU: End-to-end speech emotion recognition from raw waveform signal using CNNs and gated recurrent unit networks

Nfissi, Alaa; Bouachir, Wassim; Bouguila, Nizar; Mishara, Brian

278 Adversarial Attacks on Speech Separation Systems

Trinh, Kendrick; Moh, Melody; Moh, Teng-Sheng

Autoencoders

95 CCVAE: A Variational Autoencoder for Handling Censored Covariates

Svahn, Caroline; Sysoev, Oleg

269 Autoencoder Ensemble Method for Botnets Detection on IOT Devices

Arroyo, Steven E; Ho, Shen-Shyang

Federated Learning

112 Federated Learning Aggregation: New Robust Algorithms with Guarantees

Ben Mansour, Adnan; Carenini, Gaia; Duplessis, Alexandre; Naccache, David

305 Stragglers Are Not Disasters: A Hybrid Federated Learning Framework with Delayed Gradients

Li, Xingyu; Qu, Zhe; Tang, Bo; Lu, Zhuo

Automation, Robotics and IoT

140 A Deep Learning based Approach for Hand Gesture Recognition on a Lowpower Microcontroller using IMU Sensors

Lauss, Daniel; Eibensteiner, Florian; Petz, Phillip; Langer, Josef

- 159 Safe Robot Navigation Using Constrained Hierarchical Reinforcement Learning
Roza, Felipe Schmoeller; Rasheed, Hassan; Roscher, Karsten; Ning, Xiangyu; Günnemann, Stephan
- 172 SECOE: Alleviating Sensors Failure in Machine Learning-Coupled IoT Systems
AlShehri, Yousef; Ramaswamy, Lakshmi
- 257 Deep Learning and Pattern-based Methodology for Multivariable Sensor Data Regression
Kavalakkatt Francis, Jiztom; Kumar, Chandan; Herrera, Jansel; Kumar, Kundan; Darr, Matthew
- 116 Source Domain Selection for Cross-House Human Activity Recognition with Ambient Sensors
Ung, Huy Quang; Niu, Hao; Wada, Shinya
- 346 Intent based Multimodal Speech and Gesture Fusion for Human-Robot Communication in Assembly Situation
Paul, Sheuli; Sintek, Michael; Kepuska, Veton; Silaghi, Marius C; Robertson, Liam
- 161 EVDD - A Novel Dataset For Embedded System Vulnerability Detection Mechanism
Mansour Alqarni, Akramul Azim, Tegveer Singh
- 234 A Real-time Digit Gesture Recognition System Based on mmWave
Radar Chun, Yuan; Zhong, Youxuan; Zou, Yi
- 249 Real Time Change Detection At the Edge Using GMM
Gadiraju, Krishna Karthik; Chen, Zexi ; Ramachandra, Bharathkumar; Vatsavai, Ranga Raju

Machine Learning: Fundamentals

- 156 Cost-sensitive Hierarchical Clustering for Dynamic Classifier Selection
Sellmann, Meinolf; Shah, Tapan
- 195 TRANSQL: A Transformer-based Model for Classifying SQL Queries
Tahmasebi, Shirin; Payberah, Amir H.; Soylu, Ahmet; Roman, Dumitru; Matskin, Mihail
- 213 Trade-off between reconstruction loss and feature alignment for domain generalization
Nguyen, Thuan; Lyu, Boyang; Ishwar, Prakash; Scheutz, Matthias; Aeron, Shuchin
- 216 From Causal Pairs to Causal Graphs
Rashid, Rezaur; Chowdhury, Jawad; Terejanu, Gabriel
- 385 Edge utilization in graph convolutional networks for graph classification
Yue, Xiao; Liu, Bo; Zhang, Feng; Qu, Guangzhi
- 224 Variational Inference via Rényi Upper-Lower Bound Optimization
Oshri, Dana K; Fine, Shai
- 291 Stochastic Induction of Decision Trees with Application to Learning HAAR Trees
Alizadeh, Azar; Behzadan, Vahid; Tavallali, Pooya; Ranganath, Aditya; Singhal, Mukesh
- 304 A novel Approach for Synthetic Reduced Nearest-Neighbour Leveraging Neural Networks
Alizadeh, Azar; Behzadan, Vahid; Tavallali, Pooya; Ranganath, Aditya; Singhal, Mukesh

19:00

Poster Session 3 (19:00 to 20:00)

Conference Posters Room

Machine Learning: Fundamentals

- 73 SemiMul: Floating-Point Free Implementations for Efficient and Accurate Neural Network Training
Nezhadi Kheleji, Ali; Angizi, Shaahin; Roohi, Arman
- 90 Code2Snapshot: Using Code Snapshots for Learning Representations of Source Code
Rabin, MD Rafiqul Islam; Alipour, Amin
- 104 HeteroGenius: An Improved 'Intelligence' in Heterogeneous Graph Transformers
Sadman, Nafiz; Sadmanee, Akib; Gupta, Kishor Datta; George, Roy
- 127 A Layer Decomposition Approach to Inference Time Prediction of Deep Learning Architectures
Alqahtani, Ola M; Ramaswamy, Lakshmi
- 239 Multi-Learning Generalised Low-Rank Models
Buet-Golfouse, Francois; Pahwa, Parth
- 294 Classification of Functional Data: A Comparative Study
Ramos-Carreño, Carlos; Suárez, Alberto; Torrecilla, José L
- 303 An exploratory analysis of a dynamic ensemble structure using an automatic decision process
Dantas, Carine; Canuto, Anne; Nunes, Romulo; Xavier-Junior, Joao Carlos

Responsible AI

- 338 A New Framework to Assess the Individual Fairness of Probabilistic Classifiers
Khan, Muhammad Fawad Akbar; Karimi, Hamid

258 Towards Fairness and Interpretability: Clinical Decision Support for Acute Coronary Syndrome

Sahoo, Himanshu Shekhar; Ingraham, Nick; Silverman, Greg; Sartori, John

366 Ontology-Based Post-Hoc Explanations via Simultaneous Concept Matching

Ponomarev, Andrew; Agafonov, Anton

Posters from special sessions:

Deep Learning

137 Clustering image data with a fixed embedding

C.H. Yeang

364 Fine-grained analysis of the transformer model for efficient pruning

L. Ben Letaifa, J-L Rouas

404 Solving Subset Sum Problems using Quantum Inspired Optimization Algorithms with Applications in Auditing and Financial Data Analysis

D. Biesner, T. Gerlach, B. Kliem, C. Bauckhage, R. Sifa

410 Distribution Based Upper Lower Bound Estimation in Deep Neural Nets

M. R. Eressa, H. Badis, D. Grosso

412 Smooth Trajectory Collision Avoidance through Deep Reinforcement Learning

Song, Sirui; Saunders, Kirkland M; Yue, Ye; Liu, Jundong

415 Feature Extraction for Out of Distribution Detection via Self-Supervised Learning

W. Bennette, C. A. Thorp, S. Sisti

427 Recurrent Neural Network-Based Video Compression

Z. Montajabi, G. V. Khorasani Ghassab, N. Bouguila

483 Contactless Low Power Air-Writing Based on FMCW Radar Networks Using Spiking Neural Networks

M. Arsalan, T. Zheng, A. Santra, V. Issakov

486 Impact of Labeling Noise on Machine Learning: Cost-aware Empirical Study

A. Gharawi, J. Alsubhi, L. Ramaswamy

Machine Learning in Health

52 Deformable Registration of Low-overlapping Medical Images

Sabrowsky-Hirsch, Bertram; Schenkenfelder, Bernhard; Klug, Christoph; Reishofer, Gernot; Scharinger, Josef

405 Improving Chest X-Ray Classification by RNN-based Patient Monitoring

Biesner, David; Schneider, Helen; Wulff, Benjamin; Sifa, Rafet

424 Prediction of Heart Attacks using Data Mining Techniques

Abdelghani, Bassam; Fadal, Sophia; Bedoor, Shadi; Banitaan, Shadi

437 Predicting anxiety treatment outcomes with machine learning

Stanojevic, Marija; Norris, Lesley; Kendall, Philip C.; Obradovic, Zoran

452 A Comparative Study on 1.5T - 3T MRI Conversion through Deep Neural Network Models

Liao, Binhua; Chen, Yani; Liu, Jundong

282 Using Artificial Intelligence to Predict Patient Electronic Health Record Access Points

Dogan, Gulustan

439 Time-to-event modeling of subreddits transitions to r/SuicideWatch

Liu, Xueying; Mohler, George; Fang, Shiaofen; Xiao, Yunyu; Carlson, Joan

450 Machine Learning in Personalized Skin-care: A Simulation Scheme for Pattern Recognition in Skin Condition Genome-wide Association Studies

Bonnell, Jerry; Xia, Melanie; Wall, Lee; Eggleston, York; Ogiyara, Mitsunori; Aguiar-Pulido, Vanessa

466 Novel Machine Learning Experiments with Artificially Generated Big Data from Small

Immunotherapy Datasets

Mahmoud, Ahsanullah Yunas; Neagu, Daniel C.; Abdullatif, Amr Rashad Ahmed; Scrimier, Daniele

20.00

Date	Time			
Dec. 13 Tuesday	8:30	Keynote Talk: "Exemplar-based Deep Learning" Plamen Angelov, University of Lancaster, UK Conference Room 1/Online		
		Parallel Sessions (20 minutes each paper)		
	9:30	<u>Session: NLP and Text Mining II (in-person)</u> Conference Room 1 Chair: Rim Hantach 107 Symbolic Semantic Memory in Transformer Language Models <i>Morain, Robert; Vargas, Kenneth A; Ventura, Dan</i> 139 Online Handwriting Recognition using LSTM on Microcontroller and IMU Sensors <i>Meissl, Florian; Eibensteiner, Florian; Petz, Phillip; Langer, Josef</i> 242 Using Natural Language Processing to Predict Costume Core Vocabulary of Historical Artifacts <i>Madhuvanti Muralikrishnan; Amr Hilal; Chreston Miller Dina Smith-Glaviana</i>	<u>Session: Computer Vision II (in-person session)</u> Conference Room 2 Chair: Carmela Comito 8 C2FMOS: Coarse-to-fine of Multi-organ Segmentation Model Based on Point Cloud <i>Luo, Mingxing</i> 146 Rethinking of Domain Users Control in Computer Vision Pipelines by Customized Attention <i>Shirazi, Majid, Safronov, Georgij, Rizk, Amr</i> 183 Scrape, Cut, Paste and Learn: Automated Dataset Generation Applied to Parcel Logistics <i>Naumann, Alexander; Hertlein, Felix; Zhou, Benchun; Dörr, Laura; Furmans, Kai</i>	<u>Session: ML Applications in Cybersecurity (online session)</u> Chair: Kit Yan Chan 250 Deep Neural Network Piration without Accuracy Loss <i>Ray, Aritra; Jia, Jinyuan; Saha, Sohini; Chaudhuri, Jayeeta; Gong, Neil Zhenqiang; Chakrabarty, Krishnendu</i> 254 VDGraph2Vec: Vulnerability Detection in Assembly Code using Message Passing Neural Networks <i>Diwan, Ashita; Li, Miles Q.; Fung, Benjamin C. M.</i> 334 Can We Predict Consequences of Cyber Attacks? <i>Datta, Prerit; Siami Namin, Akbar; Jones, Keith</i> 420 Bad Citrus: Reducing Adversarial Costs with Model Distances <i>Giorgio Severi, Will Pearce, Alina Oprea</i>
10:30	Coffee Break			
	Parallel Sessions (20 minutes each paper)			
10:40	<u>Session: Machine Learning Fundamentals III (in-person session)</u> Conference Room 1 Chair: 296 ICDARTS: Improving the Stability of Cyclic DARTS <i>Herron, Emily J; Young, Steven R; Rose, Derek</i> 313 An Algorithm Adaptation Method for Multi-Label Stream Classification using Self-Organizing Maps	<u>Session: Machine Learning Fundamentals II (in-person session)</u> Conference Room 2 Chair: Roummel Marcia 152 Class-wise and reduced calibration methods <i>Panchenko, Michael; Benmerzoug, Anes; de Benito Delgado, Miguel</i> 168 Not All Network Weights Need to Be Free <i>Marwood, David; Covell,</i>	<u>Session: Deep Learning Applications (online session)</u> Chair: Uche Onyekpe 326 Deep Baseline Network for Time Series Modeling and Anomaly Detection <i>Ge, Cheng; Chen, Xi; Wang, Ming; Wang, Jin</i> 106 SimCURL: Simple Contrastive User Representation Learning from Command Sequences	

	<p><i>Cerri, Ricardo; Faria, Elaine; Gama, João</i></p> <p>376 Transfer Learning for Bayesian Optimization with Principal Component Analysis <i>Masui, Hideyuki; Romeres, Diego, Nikovski, Daniel</i></p> <p>25 Decision Boundaries of Deep Neural Networks <i>Karimi, Hamid; Derr, Tyler</i></p>	<p><i>Michele; Baluja, Shumeet</i></p> <p>265 Secured Federated Training: Detecting Compromised Nodes and Identifying the Type of Attacks <i>Ovi, Pretom Roy; Gangopadhyay, Aryya</i></p> <p>454 Software package for regression algorithms based on Gaussian Conditional Random Fields <i>Tijana Markovic, Vladan Devedzic, Fang Zhou, Zoran Obradovic</i></p> <p>204 Active Learning with Combinatorial Coverage <i>Cody, Tyler, Katragadda, Sai Prathyush, Beling, Peter, Freeman, Laura</i></p>	<p><i>Chu, Hang; Khasahmadi, Amir Hosein; Willis, Karl D.D.; Anderson, Fraser; Mao, Yaoli; Tran, Linh; Matejka, Justin; Vermeulen, Jo</i></p> <p>109 Point Cloud-based Variational Autoencoder Inverse Mappers (PC-VAIM) - An Application on Quantum Chromodynamics Global Analysis <i>Almaeen, Manal; Almaeen, Manal; Alanazi, Yasir; Sato, Nobuo; Melnitchouk, Wally; Li, Yaohang</i></p> <p>169 Approximate Orthogonal Spectral Autoencoders for Community Analysis in Social Networks <i>Wahl, Scott A; Sheppard, John W</i></p> <p>133 Deep Contrastive Anomaly Detection for Airline Ancillaries Prediction <i>Yang, Pu; Kolbeinsson, Arinbjörn; Shukla, Nama; Barria, Javier A</i></p>
12:20	Lunch Break		
	Parallel Sessions (20 minutes each paper)		
13:40	<p><u>Session: Responsible/Explainable/ Interpretable AI (in-person session)</u></p> <p>Conference Room 1</p> <p>Chair: Mehmet Gulum</p> <p>177 Mixture of Decision Trees for Interpretable Machine Learning <i>Brüggenjürgen, Simeon; Schaaf, Nina; Huber, Marco; Kerschke, Pascal</i></p> <p>380 Interpretability of ReLU for Inversion <i>Ilan, Boaz; Ranganath, Aditya; Khatri, Shilpa; Marcia, Roummel</i></p> <p>378 Are Post-Hoc Explanation Methods for Prostate Lesion Detection Effective for Radiology End Use? <i>Gulum, Mehmet A; Trombley, Christopher M; Kantardzic, Mehmed; Ozen, Merve</i></p>	<p><u>Session: Decision Support Systems (in-person session)</u></p> <p>Conference Room 2</p> <p>Chair: Kateryna Morozovska</p> <p>10 Active learning of causal probability trees <i>Herlau, Tue</i></p> <p>280 Knowledge-based Deep Learning for Modeling Chaotic Systems <i>Elabid, Zakaria, Chakraborty, Tanujit, Hadid, Abdenour</i></p> <p>354 Improving Fashion Attribute Classification Accuracy With Limited Labeled Data Using Transfer Learning <i>Chen, Tong; Noh, Jiho; Cranfill, Luke; Morris, John; Son, Junggab</i></p>	<p><u>Session: Automation, Robotics and IoT I (online session; this session starts at 13.20 not 13.40)</u></p> <p>Chair: Longzhi Yang</p> <p>97 Context-free Self-Conditioned GAN for Trajectory Forecasting <i>Rodrigues de Almeida, Tiago Miguel; Martinez Mozos, Oscar; Gutierrez Maestro, Eduardo</i></p> <p>199 Using Contextual Bandits for Maintaining Driver's Alertness via Personalized Interventions <i>Ponomarev, Andrew</i></p> <p>45 Evolutionary Neural Architecture Search for Traffic Forecasting <i>Klosa, Daniel; Büskens, Christof</i></p> <p>341 Fast Counterfactual Explanation for Solar Flare Prediction <i>Li, Peiyu; Filali Boubrahimi, Soukaina; Hamdi, Shah Muhammad</i></p>

			398 Temporal Rule-Based Counterfactual Explanations for Multivariate Time Series <i>Bahri, Omar; Filali Boubrahimi Soukaina; Hamdi, Shah Muhammad</i>
15:00	Parallel Sessions (20 minutes each paper)		
15:20	<p><u>Session: Automation, Robotics and IoT II (in-person session)</u></p> <p>Conference Room 1</p> <p>Chair:</p> <p>311 Learning Task-independent Joint Control for Robotic Manipulators with Reinforcement Learning and Curriculum Learning <i>Væhrens, Lars; Díez Álvarez, Daniel; Berger, Ulrich; Bøgh, Simon</i></p> <p>343 Imitation from Observation using RL and Graph-based Representation of Demonstrations <i>El Manyari, Yassine; Le Callet, Patrick; Dollé, Laurent</i></p> <p>316 Exploring Edge Machine Learning-based Stress Prediction using Wearable Devices <i>Sim, Sang-Hun; Paranjpe, Tara; Roberts, Nicole; Zhao, Ming</i></p>	<p><u>Session : ML Applications in Health II (in-person session)</u></p> <p>Conference Room 2</p> <p>Chair: Dominique Duncan</p> <p>71 Using Transparent Neural Networks and Wearable Inertial Sensors to Generate Physiologically-Relevant Insights for Gait <i>Zhou, Lin; Fischer, Eric; Brahms, Clemens Markus; Granacher, Urs; Arrrich, Bert</i></p> <p>245 Causal Inference for Personalized Treatment Effect Estimation for given Machine Learning Models <i>Rust, Johannes; Autexier, Serge</i></p>	<p><u>Session: ML Applications in Health I (online session)</u></p> <p>Chair: Longzhi Yang</p> <p>55 Predicting Clinical Events via Graph Neural Networks <i>Kanchinadam, Teja; Shaheen, Gauher</i></p> <p>64 Unsupervised Multivariate Time-Series Transformers for Seizure Identification on EEG <i>Yildiz Potter, Ilkay; Zerveas, George; Eickhoff, Carsten; Duncan, Dominique</i></p> <p>286 Pose Estimation for Future Prediction of Falling <i>Dogan, Gulustan; Kurpiewski, Evan</i></p> <p>300 REVA: a rank-based multi-dimensional measure of correlation <i>Afsari, Bahman; Favorov, Alexander; Fertig, Elana; Cope, Leslie</i></p>
16:20	Coffee Break		
16:40	<p><u>Special session: Cybersecurity and Big Data (in-person session)</u></p> <p>Conference Room 1</p> <p>Chairs: Aritran Piplai & Francesco Mercaldo</p> <p>408 Zero Day Threat Detection Using Metric Learning Autoencoders <i>Dhruv Nandakumar; Robert Schiller; Christopher S Redino; Kevin K Choi; Abdul Rahman; Edward Bowen; Marc Vucovich; Matthew Weeks; Aaron Shaha; Joe Nehila</i></p> <p>426 Feature Reduction Method Comparison Towards Explainability and Efficiency in Cybersecurity Intrusion</p>	<p><u>Special Session: ML for Predictive Models in Engineering Applications I (in-person session)</u></p> <p>Conference Room 2</p> <p>Chair: Shadi Banitaan</p> <p>138 Performance of supervised learning algorithms for radioisotope identification using CLYC detectors <i>David Pérez-Loureiro, Jude Alexander</i></p> <p>272 Physics-Informed Neural Networks for Modelling Cellulose Degradation in Power Transformers <i>Federica Bragone, Khaoula</i></p>	<p><u>Session: ML Fundamentals IV (online session)</u></p> <p>Chair: Andrew Karem</p> <p>80 Data-Parallel Momentum Diagonal Empirical Fisher (DP-MDEF): Adaptive Gradient Method is Affected by Hessian Approximation and Multi-Class Data <i>Xu, Chenyuan; Haruki, Kosuke; Suzuki, Taiji; Ozawa, Masahiro; Uematsu, Kazuki; Sakai, Ryuji</i></p> <p>102 Self Meta Pseudo Labels <i>Ng, Kei Sing; Wang, Qingchen</i></p> <p>271 Multi-view Contrastive Multiple Knowledge Graph Embedding for Knowledge</p>

	<p>Detection Systems <i>Adam M Lehari; Seongtae Kim</i></p> <p>445 Autoencoder Feature Residuals for Network Intrusion Detection: Unsupervised Pre-training for Improved Performance <i>Brian Lewandowski; Randy Paffenrot</i></p> <p>489 Knowledge guided Two-player Reinforcement Learning for Cyber Attacks and Defenses <i>Aritran Piplai; Mike Anoruo; Kayode Fasaye; Anupam Joshi; Tim Finin</i></p> <p>409 Exposing Surveillance Detection Routes via Reinforcement Learning, Attack Graphs, and Cyber Terrain <i>Lanxiao Huang; Tyler Cody; Christopher S Redino; Abdul Rahman; Akshay Kakkar; Deepak K Kushwaha; Cheng Wang; Ryan Clark; Daniel Radke; Peter Beling; Edward Bowen</i></p>	<p><i>Oueslati, Tor Laneryd, Michele Luvisotto, Kateryna Morozovska</i></p> <p>273 Self-Supervised Transformer Networks for Error Classification of Tightening Traces <i>Dennis Bogatov Wilkman, Lifei Tang, Kateryna Morozovska, Federica Bragone</i></p> <p>479 Multi-omics Data Integration Model based on Isomap and Convolutional Neural Network <i>Abedalrhman Alkhateeb, Bashier Elkarami, Hazem Qattous, Abdullah Al-Refai, Noor Alafeshat, Behnam Shahrava, Mohammad Azzeh</i></p> <p>499 Transferring Indoor Corrosion Image Assessment Models to Outdoor Images via Domain Adaptation <i>Nicholas Josselyn, Biao Yin, Thomas Considine, John Kelley</i></p>	<p>Completion <i>Kurokawa, Mori; Yonekawa, Kei; Haruta, Shuichiro; Konishi, Tatsuya; Asoh, Hideki; Ono, Chihiro; Hagiwara, Masafumi</i></p> <p>279 Informative Evaluation Metrics for Highly Imbalanced Big Data Classification <i>Hancock, John; Khoshgoftaar, Taghi; Johnson, Justin</i></p> <p>333 Cost-Sensitive Ensemble Learning for Highly Imbalanced Classification <i>Johnson, Justin; Khoshgoftaar, Taghi</i></p> <p>117 FedGLS: Mitigating Forgetting in Federated Learning via Guided Label Smoothing from the Global Teacher <i>Dong, Xin; Kung, H.T.</i></p> <p>384 Data-Efficient Automatic Model Selection in Unsupervised Anomaly Detection <i>Gudur, Gautham Krishna; R, Raaghul; K, Adithya; Vasudevan, Shrihari</i></p> <p>301 Exploiting Prototypical Explanations for Undersampling Imbalanced Datasets <i>Arslan, Yusuf; Allix, Kevin; Lefebvre, Clement; Boytsov, Andrey; Bissyandé, Tegawendé; Klein, Jacques</i></p> <p>270 Improving Robustness: When and How to Minimize or Maximize the Loss Variance <i>Balaban, Valeriu; Bidkhori, Hoda; Bogdan, Paul</i></p>
19:30	<p>Banquet Award Presentation (Best paper, Best student paper)</p>		

Date	Time			
Dec. 14 Wednes day	8:30	Keynote Talk: " Human-Centered AI to foster Trustworthy AI" Andreas Holzinger, University of Natural Resources and Life Sciences, Vienna, Austria Conference Room 1/Online		
		Parallel Sessions (20 minutes each paper)		
	9:30	Session: Anomaly Detection (in-person session) Conference Room 1 Chair: Ester Zumpano 215 Joint Sub-component Level Segmentation and Classification for Anomaly Detection within Dual-Energy X-Ray Security Imagery <i>Bhowmik, Neelanjan; Breckon, Toby P</i> 349 Explainable Unsupervised Multi-Sensor Anomaly Detection and Categorization in Glass Production <i>Ameli, Mina; Becker, Philipp Aaron; Lankers, Katharina; van Ackeren, Markus; Bähring, Holger; Maass, Wolfgang</i>	Special session: Deep Learning (online session) Chair: M. Sayed-Mouchaweh 455 Uncertainty-based Meta-Reinforcement Learning for Robust Radar Tracking <i>J. Ott, L. Servadei, G. Mauro, T. Stadelmayer, A. Santra, R. Wille</i> 416 Sat2rain: Multiple Satellite Images to Rainfall Amounts Image Conversion By Improved GAN <i>H. Sakaino, N. X. Nam, A. Higuchi, H. Hirose, K. Toyoshima</i> 474 Explainable Decision Support Tool for IoT Predictive Maintenance within the context of Industry 4.0 <i>M. Sayed-Mouchaweh</i>	Special session: Machine Learning for NLP I (online session): Chair: Rim Hantach 414 Aspect based Features in Determining Sentiment Strength: A Study using English and Non-English Informal Texts <i>Kavitha Karimbi Mahesh</i> 496 Connecting the Semantic Dots: Zero-shot Learning with Self-Aligning Autoencoders and a New Contrastive-Loss for Negative Sampling <i>Nikolai Rozanov; Mohammed Terry Jack</i> 504 Performance Benchmark of Machine Learning-Based Methodology for Swahili News Article Categorization <i>Shaun A Little; Kaushik Roy; Ahmed Al Hamoud</i>
	10:30	Coffee Break		
	Parallel Sessions (20 minutes each paper)			
10:40	Session: Autoencoders and Deep Learning (in-person session) Conference Room 1 Chair: Jerome Rutinowski 197 A Variational Autoencoder for Temporal and Heterogeneous Longitudinal Data <i>Öğretir, Mine; Ramchandran, Siddharth; Papatheodorou, Dimitrios; Lähdesmäki, Harri</i> 373 Unified Autoencoder with Task Embeddings for Multi-Task Learning in Renewable Power Forecasting <i>Nivarthi, Chandana Priya; Vogt, Stephan; Sick, Bernhard</i>	Special session: Machine Learning in Energy (in-person session) Conference Room 2 Chair: Tak-Shing Chan & Ilhami Colak 443 Identifying Metering Hierarchies with Distance Correlation and Dominance Constraints <i>Tak-Shing Chan, Alex Gibberd</i> 463 Post-Training Quantization for Energy Efficient Realization of Deep Neural Networks <i>Cecilia Latotzke, Batuhan Balim, Tobias Gemmeke</i> 475 Transfer Learning on Phasor Measurement Data from a Power	Session: Signal/Audio/Speech Processing II (online session) Chair: Khan Muhammad 12 On the Robustness of Deep Learning-Based Speech Enhancement <i>Chhetri, Amit S</i> 99 Dealing with Distribution Shift in Acoustic Mosquito Datasets <i>Yepdjo Nkouanga, Hermann; Singh, Suresh</i> 340 A CNN-Based Automated Stuttering Identification System <i>Yash, Prabhu; Seliya, Naem</i> 260 AAEBERT: Debiasing BERT-based Hate Speech Detection Models	

	<p>433 Increasing Accuracy in Predicting Student Test Scores with Neural Networks using Domain Reduction Technique of Principal Component Analysis <i>Michael Brown</i></p> <p>498 Towards Graph Representation based Re-Identification of Chipwood Pallet Blocks <i>Jérôme Rutinowski, Simon Klüttermann</i></p>	<p>System to Detect Events in Another System <i>Ameen Abdel Hai, Taif Mohamed, Martin Pavlovski, Mladen Kezunovic, Zoran Obradovic</i></p> <p>491 Predicting MXene Properties via Machine Learning <i>Eric W Vertina, Nathaniel A Deskins, Emily Sutherland, Oren Mangoubi</i></p> <p>449 Physics-informed neural networks for prediction of transformer's temperature distribution <i>Oliver Welin Odeback, Federica Bragone, Tor Laneryd, Michele Luvisotto, Kateryna Morozovska</i></p>	<p>via Adversarial Learning <i>Okpala, Ebuka J; Cheng, Long; Mbwambo, Nicodemus; Luo, Feng</i></p>
12:20	Lunch Break		
	Parallel Sessions (20 minutes each paper)		
13:40	<p><u>Special Session: ML for Predictive Models in Engineering Applications II (in-person session)</u> Conference Room 1 Chair: Shadi Banitaan</p> <p>321 Managing imprecise map and image data in a possibility theory framework <i>Salem Benerferhat; Khensa Douadi; Maroua Yamami; Lila Meziani</i></p> <p>456 Machine learning protocol from ultrasound data for monitoring, predicting, and supporting the analysis of dam slopes <i>Werickson Rocha; Antonio U Lucena; Gabriel F Sarmanho; Rodrigo C Felix</i></p> <p>457 Nuclide Identification using CsI(Tl) Gamma Ray Spectra and Neural Networks <i>Timo Maiwald; Erich Leder; Ralf Pijahn; Reinhard Buchhold; Georg Fischer</i></p> <p>460 Improving Aquaculture Systems using AI: Employing predictive models for Biomass Estimation on Sonar Images <i>Mohan Kashyap Pargi, Elham Bagheri; Ricardo Shirota Filho; Eng Huat Khoo, Farshad</i></p>	<p><u>Special session: Machine Learning for NLP II (in-person):</u> Conference Room 2 Chair: Rim Hantach</p> <p>406 Zero-Shot Text Matching for Automated Auditing using Sentence Transformers <i>David Biesner; Maren Pielka; Rajkumar Ramamurthy; Tim Dilmaghani; Bernd Kliem; Ruediger Loitz; Rafet Sifa</i></p> <p>434 Semi-Supervised Machine Learning for Analyzing COVID-19 Related Twitter Data for Asian Hate Speech <i>Caitlin Richardson; Sandeep Shah; Xiaohong Yuan</i></p> <p>440 A Linguistic Investigation of Machine Learning based Contradiction Detection Models: An Empirical Analysis and Future Perspectives <i>Maren Pielka; Felix Rode; Rafet Sifa</i></p> <p>468 KPI-EDGAR: A Novel Dataset and Accompanying Metric for Relation Extraction from Financial Documents <i>Tobias Deußer; Syed Musharraf Ali; Lars Hillebrand; Desiana Nurchalifah; Basil Jacob; Christian</i></p>	<p><u>Special session: ML in Health I (online session):</u> Chair: Agostino Forestiero</p> <p>407 On the Trade-off Between Benefit and Contribution for Clients in Federated Learning in Healthcare <i>Düsing, Christoph; Cimiano, Philipp</i></p> <p>411 Determining Association between Fatal Heart Failure and Chronic Kidney Disease: A Machine Learning Approach <i>Haque, Adiba; Kabir, Anika Nahian; Islam, Maisha ; Monjur, Mayesha; Rhaman, Md. Khalilur ; Mostakim, Moin</i></p> <p>423 Cost-effective Models for Detecting Depression from Speech <i>Tasnim, Mashrura; Novikova, Jekaterina</i></p> <p>448 COVID-19 Detection from Cough Recording by means of Explainable Deep Learning <i>Mercaldo, Francesco; Di Giammarco, Marcello; Tavone, Michele; Iadarola, Giacomo; Cesarelli, Mario; Santone, Antonella ; Martinelli, Fabio</i></p> <p>501 What If Kidney Tumor Segmentation Challenge (KiTS19) Never Happened</p>

	<i>Shishehchian</i>	<i>Bauckhage; Rafet Sifa</i> 482 A Novel Multimodal Situated Spoken Dialog System for Human Robot Communication in Emergency Evacuation <i>Sheuli Paul; Michael Sintek; Marius C Silaghi; Veton Kepuska; Liam Robertson</i> 490 On Label Quality in Class Imbalance Setting - A Case Study <i>Jumanah Alshehri; Marija Stanojevic; Eduard Dragut; Zoran Obradovic</i>	<i>Mushtaq, Erum; Ding, Jie; Avestimehr, Salman</i> 43 Automatic Sleep Stage Classification with Optimized Selection of EEG Channel <i>Molinas, Marta; Stenwig, Håkon; Soler, Andres; Furuki, Junya; Suzuki, Yoko; Abe, Takashi</i>
15:20	Coffee Break		
	Parallel Sessions (20 minutes each paper)		
15.40	<p><u>Special session: ML in Health II (in person session):</u> Conference Room 1</p> <p>Chair: Ester Zumpano & Carmela Comito</p> <p>413 An Application of Document Embeddings to Identifying Challenging Behaviors in Autism Spectrum Disorder From Clinical Notes <i>Atchison, Abigail; Pinto, Gabriela; Woodward, Ali; Stevens, Elizabeth; Dixon, Dennis; Linstead, Erik</i></p> <p>464 Dejà vu: Recurrent Neural Networks for health wearables data forecast <i>Matias, Igor; Wac, Katarzyna</i></p> <p>488 Using CatBoost and Other Supervised Machine Learning Algorithms to Predict Alzheimer's Disease <i>Jessica An</i></p> <p>438 Predicting COVID-19 Case Counts using Twitter Image Data <i>Ockerman, Seth; Carrier, Erin</i></p>	<p><u>Special Session: ML for Predictive Models in Engineering Applications III (online session)</u></p> <p>Chair: Shadi Banitaan</p> <p>478 GDSCAN: Pedestrian Group Detection using Dynamic Epsilon <i>Mingzuoyang Chen, Shadi Banitaan, Mina Maleki, Yichun Li</i></p> <p>487 Occupancy Detection based on WI-FI SysLog Data <i>Bassam Abdelghani; Mina Maleki; Shadi Banitaan; Amna Mazen</i></p> <p>418 On Selection of Optimal Kernel Function for Software Defect Prediction <i>Mohammad Azzeh; Ali Bou Nassif; Shadi Banitaan</i></p> <p>180 XAI-BayesHAR: A novel Framework for Human Activity Recognition with Integrated Uncertainty and Shapely Values <i>Dubey, Anand; Lyons, Niall; Pandey, Ashutosh; Santra, Avik</i></p> <p>185 Universal Thomson Sampling <i>Sauro, Luigi; Faella, Marco</i></p> <p>288 Soil Moisture Estimation Using Hyperspectral Imagery Based on</p>	<p><u>Special session: Deep Learning and Applications (online session with online papers from different special sessions)</u></p> <p>Chair: M. Sayed-Mouchaweh</p> <p>432 Graph-based Recommendation using Graph Neural Networks <i>Luigi Portinale, Christopher Irwin, Marco Dossena</i></p> <p>469 Utilizing Explainable AI for improving the Performance of Neural Networks <i>H. Sun, L. Servadei, H. Feng, M. Stephan, R. Wille, A. Santra</i></p> <p>508 Recent Trends in Neural Architecture Search Systems <i>Sarwat Ali, M. Arif Wani</i></p> <p>444 Continuous and Silent User Authentication Through Mouse Dynamics and Explainable Deep Learning <i>Giovanni Ciaramella; Stefano Fagnano; Giacomo Iadarola; Fabio Martinelli; Francesco Mercaldo; Antonella Santone</i></p> <p>18 Exploring the Explicit Modelling of Bias in Machine Learning Classifiers: A Deep Multi-label ConvNet</p>

			<p>Metric Learning <i>Bo Tang, Weiwei Xie, Robert Moorhead, Qingmin Meng</i></p>	<p>Approach <i>Mashaal Al-Luhaybi</i></p> <p>503 Understanding the Generalizability of Hateful Memes Detection Models Against COVID-19-related Hateful Memes <i>Keyan Guo; Wentai Zhao; Jaden Mu; Nishant Vishwamitra; Ziming Zhao; Hongxin Hu</i></p>
17:40	Closing Remarks			