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	**Session: Reinforcement Learning I (in-person session)** Conference Room 1 **Chair: Xunfei Jiang** 231 Addressing Sample Efficiency and Model-bias in Model-based Reinforcement Learning *Anand, Akhil S; Erik Kveen, Jen; Abu-Dakka, Fares J.; Grøtli, Esten Ingar; Gravdahl, Jan Tommy* 397 Attention-based Partial Decoupling of Policy and Value for Generalization in Reinforcement Learning *Nafi, Nasik Muhammad; Glasscock, Creighton A; Hsu, William*	**Session: Time Series Processing (in-person session)** Conference Room 2 **Chair: Hichem Frigui** 82 An Empirical Evaluation of Multivariate Time Series Classification with Input Transformation across Different Dimensions *Pantiskas, Leonardos; Verstoep, Kees; Hoogendoorn, Mark; Bal, Henri* 285 TSEvo: Evolutionary Counterfactual Explanations for Time Series Classification *Hoellig, Jacqueline; Kulbach, Cedric; Thoma, Steffen* 225 PerMTL: A Multi-Task Learning Framework for Skilled Human Performance Assessment *Ghosh, Indrajeet; Chakma, Avijoy; Ramasamy Ramamurthy, Sreenivasan; Roy, Nirmalya; Waytowich, Nicholas*	**Session: Computer Vision I (online session)** **Chair: Daniel Neagu** 39 Topological Regularization for Dense Prediction *Fu, Deqing; Nelson, Bradley J* 173 A Lightweight and Fast Approach for Upper Limb Range of Motion Assessment *Yan, Xuke; Zhang, Linxi; Liu, Bo; Qu, Guangzhi* 306 Real-Time Cattle Interaction Recognition via Triple-stream Network *Yang, Yan; Komatsu, Mizuka; Oyama, Kenji; Ohkawa, Takenao* 192 Deeper Bidirectional Neural Networks with Generalized Non-Vanishing Hidden Neurons *Kosko, Bart; Adigun, Olaoluwa A*
	10:20	**Coffee Break**		
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	using Convolutional Neural Network *Liu, Kaihua; Liu, Xudong* 351 Automatic Key Information Extraction from Visually Rich Documents *de Trogoff, Charles; Hantach, Rim; Lechuga, Gisela; Calvez, Philippe*	Identification of Wooden Euro-pallets *Rutinowski, Jérôme; Pionzewski, Christian; Chilla, Tim; Reining, Christopher; ten Hompel, Michael* 315 DeepWafer: A Generative Wafermap Model with Deep Adversarial Networks *Mahyar, Hamidreza; Ghalebi, Elahe; Tulala, Peter; Grusu, Radu*	*Riyadh, Md Moinuddin Sharif; Shafiq, Omair* 36 Information Used in Fake News Detection on Social Media. *Alghamdi, Jawaher; Lin, Yuqing; Luo, Suhuai* 347 Sentence Similarity Recognition in Portuguese from Multiple Embedding Models *Rodrigues, Ana C; Marcacini, Ricardo Marcondes* 87 A Robust Approach to Fine-tune Pre-trained Transformer-based models for Text Summarization through Latent Space Compression *Alam Falaki, Ala; Gras, Robin* 461 Bayesian Rule Ontologies For XAI Classification and Regression *Bart Kosko, A. Panda*
12:00	**Lunch Break**		
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13:30	**<u>Session: Image Processing II (in-person session)</u>** Conference Room 1 **Chair: Sara Sharifzadeh** 51 Histogram Layers for Synthetic Aperture Sonar Imagery *Peeples, Joshua; Zare, Alina; Dale, Jeffrey J; Keller, James* 155 Kernelization of Tensor Discriminant Analysis with Application to Image Recognition *Ozdemir, Cagri; Hoover, Randy C.; Caudle, Kyle A; Braman, Karen* 170 Attention-Based Generative Neural Image Compression on Solar Dynamics Observatory *Zafari, Ali; Khoshkhahtinat, Atefeh; Mehta, Piyush; Nasrabadi, Nasser; Thompson, Barbara J; Da Silva, Daniel; Kirk, Michael*	**<u>Session: Machine Learning Fundamentals I (in-person session)</u>** Conference Room 2 **Chair: Tyler Cody** 65 Fair Algorithms for Hierarchical Agglomerative Clustering *Chhabra, Anshuman; Mohapatra, Prasant* 75 BlinkNet: Software-Defined Deep Learning Analytics with Bounded Resources *Koga, Brian; Vanderweide, Theresa; Zhao, Xinghui; Zhang, Xuechen* 81 Nested Multiple Instance Learning with Attention Mechanisms *Fuster, Saul; Engan, Kjersti; Eftestøl, Trygve* 91 Comparing the quality of neural network uncertainty estimates for classification problems *Ries, Daniel; Michalenko, Joshua; Ganter, Tyler; Baiyasi, Rashad; Adams, Jason* 110 Adversarial Attacks on Deep Temporal Point Process *Khorshidi, Samira; Wang, Bao; Mohler, George*	**<u>Session: Reinforcement Learning II (online session)</u>** **Chair: Yi Li** 114 Bootstrap Advantage Estimation for Policy Optimization in Reinforcement Learning *Rahman, Md Masudur; Xue, Yexiang* 136 Mixed Time-frame training for reinforcement learning *Senthilnathan, Gautham* 186 Interpretable Reinforcement Learning with Multilevel Subgoal Discovery *Ponomaryov, Denis* 230 Benchmarking Offline Reinforcement learning *Tittaferrante, Andrew; Yassine, Abdulsalam* 247 Safe Reinforcement Learning for LiDAR-based Navigation via Control Barrier Function *Song, Lixing; Ferderer, Luke; Wu, Shaoen* 330 Balancing Similarity-Contrast in Unsupervised Representation Learning: Evaluation with Reinforcement Learning *Mengistu, Menore Tekeba, Alemu, Getachew , Chevallier, Pierre, De Loor, Pierre*

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

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

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124 A Neural Model for Regular Grammar Induction
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181 An Ontology-based transfer learning method improving classification of medical documents
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237 Self-Supervised Learning in the Twilight of Noisy Real-World Datasets
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302 An Edge-based Real-Time Object Detection
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320 XYZ-6D dataset for object segmentation and 6D pose estimation
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371 Machine Learning for Classifying Images with Motion Blur
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387 Fast-Image2Point: Towards Real-Time Point Cloud Reconstruction of a Single Image using 3D Supervision
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216 From Causal Pairs to Causal Graphs
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19:00 **Poster Session 3 (19:00 to 20:00)**
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410 Distribution Based Upper Lower Bound Estimation in Deep Neural Nets
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412 Smooth Trajectory Collision Avoidance through Deep Reinforcement Learning
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415 Feature Extraction for Out of Distribution Detection via Self-Supervised Learning
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427 Recurrent Neural Network-Based Video Compression
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483 Contactless Low Power Air-Writing Based on FMCW Radar Networks Using Spiking Neural Networks
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424 Prediction of Heart Attacks using Data Mining Techniques
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450 Machine Learning in Personalized Skin-care: A Simulation Scheme for Pattern Recognition in Skin Condition Genome-wide Association Studies
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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	**Session: NLP and Text Mining II (in-person)** Conference Room 1 **Chair: Rim Hantach** 107 Symbolic Semantic Memory in Transformer Language Models *Morain, Robert; Vargas, Kenneth A; Ventura, Dan* 139 Online Handwriting Recognition using LSTM on Microcontroller and IMU Sensors *Meissl, Florian; Eibensteiner, Florian; Petz, Phillip; Langer, Josef* 242 Using Natural Language Processing to Predict Costume Core Vocabulary of Historical Artifacts *Madhuvanti Muralikrishnan; Amr Hilal; Chreston Miller Dina Smith-Glaviana*	**Session: Computer Vision II (in-person session)** Conference Room 2 **Chair: Carmela Comito** 8 C2FMOS: Coarse-to-fine of Multi-organ Segmentation Model Based on Point Cloud *Luo, Mingxing* 183 Scrape, Cut, Paste and Learn: Automated Dataset Generation Applied to Parcel Logistics *Naumann, Alexander; Hertlein, Felix; Zhou, Benchun; Dörr, Laura; Furmans, Kai* 490 On Label Quality in Class Imbalance Setting - A Case Study *Jumanah Alshehri; Marija Stanojevic; Eduard Dragut; Zoran Obradovic*	**Session: ML Applications in Cybersecurity (online session)** **Chair: Kit Yan Chan** 250 Deep Neural Network Piration without Accuracy Loss *Ray, Aritra; Jia, Jinyuan; Saha, Sohini; Chaudhuri, Jayeeta; Gong, Neil Zhenqiang; Chakrabarty, Krishnendu* 254 VDGraph2Vec: Vulnerability Detection in Assembly Code using Message Passing Neural Networks *Diwan, Ashita; Li, Miles Q.; Fung, Benjamin C. M.* 334 Can We Predict Consequences of Cyber Attacks? *Datta, Prerit; Siami Namin, Akbar; Jones, Keith* 420 Bad Citrus: Reducing Adversarial Costs with Model Distances *Giorgio Severi, Will Pearce, Alina Oprea*
	10:30	**Coffee Break**		
		Parallel Sessions (20 minutes each paper)		
	10:40	**Session: Machine Learning Fundamentals III (in-person session)** Conference Room 1 **Chair: Neelanjan Bhowmik** 296 ICDARTS: Improving the Stability of Cyclic DARTS *Herron, Emily J; Young, Steven R; Rose, Derek* 313 An Algorithm Adaptation Method for Multi-Label Stream Classification using Self-Organizing Maps *Cerri, Ricardo; Faria, Elaine; Gama,*	**Session: Machine Learning Fundamentals II (in-person session)** Conference Room 2 **Chair: Roummel Marcia** 152 Class-wise and reduced calibration methods *Panchenko, Michael; Benmerzoug, Anes; de Benito Delgado, Miguel* 168 Not All Network Weights Need to Be Free *Marwood, David; Covell, Michele; Baluja, Shumeet*	**Session: Deep Learning Applications (online session)** **Chair: Uche Onyekpe** 326 Deep Baseline Network for Time Series Modeling and Anomaly Detection *Ge , Cheng; Chen, Xi; Wang, Ming; Wang, Jin* 106 SimCURL: Simple Contrastive User Representation Learning from Command Sequences *Chu, Hang; Khasahmadi, Amir*

		João 376 Transfer Learning for Bayesian Optimization with Principal Component Analysis *Masui, Hideyuki; Romeres, Diego, Nikovski, Daniel* 25 Decision Boundaries of Deep Neural Networks *Karimi, Hamid; Derr, Tyler*	265 Secured Federated Training: Detecting Compromised Nodes and Identifying the Type of Attacks *Ovi, Pretom Roy; Gangopadhyay, Aryya* 454 Software package for regression algorithms based on Gaussian Conditional Random Fields *Tijana Markovic, Vladan Devedzic, Fang Zhou, Zoran Obradovic* 204 Active Learning with Combinatorial Coverage *Cody, Tyler, Katragadda, Sai Prathyush, Beling, Peter, Freeman, Laura*	*Hosein; Willis, Karl D.D.; Anderson, Fraser; Mao, Yaoli; Tran, Linh; Matejka, Justin; Vermeulen, Jo* 109 Point Cloud-based Variational Autoencoder Inverse Mappers (PC-VAIM) - An Application on Quantum Chromodynamics Global Analysis *Almaeen, Manal; Almaeen, Manal; Alanazi, Yasir; Sato, Nobuo; Melnitchouk, Wally; Li, Yaohang* 169 Approximate Orthogonal Spectral Autoencoders for Community Analysis in Social Networks *Wahl, Scott A; Sheppard, John W* 133 Deep Contrastive Anomaly Detection for Airline Ancillaries Prediction *Yang, Pu; Kolbeinsson, Arinbjörn; Shukla, Nama; Barria, Javier A* 178 A Vision Transformer Architecture for Open Set Recognition *Cai, Feiyang; Zhang, Zhenkai; Liu, Jie; Koutsoukos, Xenofon*
	12:20	**Lunch Break**		
		Parallel Sessions (20 minutes each paper)		
	13:40	**Session: Responsible/Explainable/ Interpretable AI (in-person session)** Conference Room 1 **Chair: Mehmet Gulum** 177 Mixture of Decision Trees for Interpretable Machine Learning *Brüggenjürgen, Simeon; Schaaf, Nina; Huber, Marco; Kerschke, Pascal* 380 Interpretability of ReLU for Inversion *Ilan, Boaz; Ranganath, Aditya; Khatri, Shilpa; Marcia, Roummel* 378 Are Post-Hoc Explanation Methods for Prostate Lesion Detection Effective for Radiology End Use? *Gulum, Mehmet A; Trombley, Christopher M; Kantardzic, Mehmed; Ozen, Merve*	**Session: Decision Support Systems (in-person session)** Conference Room 2 **Chair: Kateryna Morozovska** 10 Active learning of causal probability trees *Herlau, Tue* 354 Improving Fashion Attribute Classification Accuracy With Limited Labeled Data Using Transfer Learning *Chen, Tong; Noh, Jiho; Cranfill, Luke; Morris, John; Son, Junggab*	**Session: Automation, Robotics and IoT I (online session; this session starts at 13.20 not 13.40)** **Chair: Longzhi Yang** 97 Context-free Self-Conditioned GAN for Trajectory Forecasting *Rodrigues de Almeida, Tiago Miguel; Martinez Mozos, Oscar; Gutierrez Maestro, Eduardo* 199 Using Contextual Bandits for Maintaining Driver's Alertness via Personalized Interventions *Ponomarev, Andrew* 45 Evolutionary Neural Architecture Search for Traffic Forecasting *Klosa, Daniel; Büskens, Christof* 341 Fast Counterfactual Explanation for Solar Flare

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

		426 Feature Reduction Method Comparison Towards Explainability and Efficiency in Cybersecurity Intrusion Detection Systems *Adam M Lehavi; Seongtae Kim* 445 Autoencoder Feature Residuals for Network Intrusion Detection: Unsupervised Pre-training for Improved Performance *Brian Lewandowski; Randy Paffenrot* 489 Knowledge guided Two-player Reinforcement Learning for Cyber Attacks and Defenses *Aritran Piplai; Mike Anoruo; Kayode Fasaye; Anupam Joshi; Tim Finin* 409 Exposing Surveillance Detection Routes via Reinforcement Learning, Attack Graphs, and Cyber Terrain *Lanxiao Huang; Tyler Cody; Christopher S Redino; Abdul Rahman; Akshay Kakkar; Deepak K Kushwaha; Cheng Wang; Ryan Clark; Daniel Radke; Peter Beling; Edward Bowen*	272 Physics-Informed Neural Networks for Modelling Cellulose Degradation in Power Transformers *Federica Bragone, Khaoula Oueslati, Tor Laneryd, Michele Luvisotto, Kateryna Morozovska* 273 Self-Supervised Transformer Networks for Error Classification of Tightening Traces *Dennis Bogatov Wilkman, Lifei Tang, Kateryna Morozovska, Federica Bragone* 479 Multi-omics Data Integration Model based on Isomap and Convolutional Neural Network *Abedalrhman Alkhateeb, Bashier Elkarami, Hazem Qattous, Abdullah Al-Refai, Noor Alafeshat, Behnam Shahrrava, Mohammad Azzeh* 499 Transferring Indoor Corrosion Image Assessment Models to Outdoor Images via Domain Adaptation *Nicholas Josselyn, Biao Yin, Thomas Considine, John Kelley*	*Ng, Kei Sing; Wang, Qingchen* 271 Multi-view Contrastive Multiple Knowledge Graph Embedding for Knowledge Completion *Kurokawa, Mori; Yonekawa, Kei; Haruta, Shuichiro; Konishi, Tatsuya; Asoh, Hideki; Ono, Chihiro; Hagiwara, Masafumi* 279 Informative Evaluation Metrics for Highly Imbalanced Big Data Classification *Hancock, John; Khoshgoftaar, Taghi; Johnson, Justin* 333 Cost-Sensitive Ensemble Learning for Highly Imbalanced Classification *Johnson, Justin; Khoshgoftaar, Taghi* 117 FedGLS: Mitigating Forgetting in Federated Learning via Guided Label Smoothing from the Global Teacher *Dong, Xin; Kung, H.T.* 384 Data-Efficient Automatic Model Selection in Unsupervised Anomaly Detection *Gudur, Gautham Krishna; R, Raaghul; K, Adithya; Vasudevan, Shrihari* 301 Exploiting Prototypical Explanations for Undersampling Imbalanced Datasets *Arslan, Yusuf; Allix, Kevin; Lefebvre, Clement; Boytsov, Andrey; Bissyandé, Tegawendé; Klein, Jacques* 270 Improving Robustness: When and How to Minimize or Maximize the Loss Variance *Balaban, Valeriu; Bidkhori, Hoda; Bogdan, Paul*
	19:30	**Banquet** **Award Presentation (Best paper, Best student paper)**		

Date	Time			
Dec. 14 Wednesday	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 *Bhowmik, Neelanjan; Breckon, Toby P* 349 Explainable Unsupervised Multi-Sensor Anomaly Detection and Categorization in Glass Production *Ameli, Mina; Becker, Philipp Aaron; Lankers, Katharina; van Ackeren, Markus; Bähring, Holger; Maass, Wolfgang*	**Special session: Deep Learning (online session)** **(this session should be attended on Line 2 in Zoom)** **Chair: M. Sayed-Mouchaweh** 455 Uncertainty-based Meta-Reinforcement Learning for Robust Radar Tracking *J. Ott, L. Servadei, G. Mauro, T. Stadelmayer, A. Santra, R. Wille* 416 Sat2rain: Multiple Satellite Images to Rainfall Amounts Image Conversion By Improved GAN *H. Sakaino, N. X. Nam, A. Higuchi, H. Hirose, K. Toyoshima* 508 Recent Trends in Neural Architecture Search Systems *Sarwat Ali, M. Arif Wani*	**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 *Kavitha Karimbi Mahesh* 496 Connecting the Semantic Dots: Zero-shot Learning with Self-Aligning Autoencoders and a New Contrastive-Loss for Negative Sampling *Nikolai Rozanov; Mohammed Terry Jack* 504 Performance Benchmark of Machine Learning-Based Methodology for Swahili News Article Categorization *Shaun A Little; Kaushik Roy; Ahmed Al Hamoud*
	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 *Öğretir, Mine; Ramchandran, Siddharth; Papatheodorou, Dimitrios; Lähdesmäki, Harri* 373 Unified Autoencoder with Task Embeddings for Multi-Task Learning in Renewable Power	**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 *Tak-Shing Chan, Alex Gibberd* 463 Post-Training Quantization for Energy Efficient Realization of Deep Neural Networks *Cecilia Latotzke, Batuhan Balim,*	**Session: Signal/Audio/Speech Processing II (online session)** **Chair: Khan Muhammad** 12 On the Robustness of Deep Learning-Based Speech Enhancement *Chhetri, Amit S* 99 Dealing with Distribution Shift in Acoustic Mosquito Datasets *Yepdjio Nkouanga, Hermann; Singh, Suresh* 340 A CNN-Based Automated Stuttering Identification System

	Forecasting *Nivarthi, Chandana Priya; Vogt, Stephan; Sick, Bernhard* 433 Increasing Accuracy in Predicting Student Test Scores with Neural Networks using Domain Reduction Technique of Principal Component Analysis *Michael Brown* 498 Towards Graph Representation based Re-Identification of Chipwood Pallet Blocks *Jérôme Rutinowski, Simon Klüttermann*	*Tobias Gemmeke* 475 Transfer Learning on Phasor Measurement Data from a Power System to Detect Events in Another System *Ameen Abdel Hai, Taif Mohamed, Martin Pavlovski, Mladen Kezunovic, Zoran Obradovic* 491 Predicting MXene Properties via Machine Learning *Eric W Vertina, Nathaniel A Deskins, Emily Sutherland, Oren Mangoubi* 449 Physics-informed neural networks for prediction of transformer's temperature distribution *Oliver Welin Odeback, Federica Bragone, Tor Laneryd, Michele Luvisotto, Kateryna Morozovska*	*Yash, Prabhu; Seliya, Naeem* 260 AAEBERT: Debiasing BERT-based Hate Speech Detection Models via Adversarial Learning *Okpala, Ebuka J; Cheng, Long; Mbwambo, Nicodemus; Luo, Feng* 146 Rethinking of Domain Users Control in Computer Vision Pipelines by Customized Attention *Shirazi, Majid, Safronov, Georgij, Rizk, Amr* 244 A scalable solution to AlphaZero based Redundancy Analysis for semiconductor chips *Thacker, Helik Kanti; Barari, Adrita; Damini, Damini; Das, Paulami; Patankar, Akhilesh Sudhir; Jujjarapu, Sairam; Gupta, Sudhanshu; Jagannathachar, Keerthi Kiran; Yoon, Deokgu*
12:20	**Lunch Break**		
	Parallel Sessions (20 minutes each paper)		
13:40	**<u>Special Session: ML for Predictive Models in Engineering Applications II (in-person session)</u>** Conference Room 1 **Chair: Shadi Banitaan** 321 Managing imprecise map and image data in a possibility theory framework *Salem Beneferhat; Khensa Douadi; Maroua Yamami; Lila Meziani* 456 Machine learning protocol from ultrasound data for monitoring, predicting, and supporting the analysis of dam slopes *Werickson Rocha; Antonio U Lucena; Gabriel F Sarmanho; Rodrigo C Felix* 457 Nuclide Identification using CsI(Tl) Gamma Ray Spectra and Neural Networks *Timo Maiwald; Erich Leder; Ralf Pijahn; Reinhard Buchhold; Georg Fischer* 460 Improving Aquaculture Systems using AI: Employing predictive models for Biomass	**<u>Special session: Machine Learning for NLP II (in-person):</u>** Conference Room 2 **Chair: Rim Hantach** 406 Zero-Shot Text Matching for Automated Auditing using Sentence Transformers *David Biesner; Maren Pielka; Rajkumar Ramamurthy; Tim Dilmaghani; Bernd Kliem; Ruediger Loitz; Rafet Sifa* 434 Semi-Supervised Machine Learning for Analyzing COVID-19 Related Twitter Data for Asian Hate Speech *Caitlin Richardson; Sandeep Shah; Xiaohong Yuan* 440 A Linguistic Investigation of Machine Learning based Contradiction Detection Models: An Empirical Analysis and Future Perspectives *Maren Pielka; Felix Rode; Rafet Sifa* 468 KPI-EDGAR: A Novel Dataset and Accompanying Metric for	**<u>Special session: ML in Health I (online session):</u>** **Chair: Agostino Forestiero** 407 On the Trade-off Between Benefit and Contribution for Clients in Federated Learning in Healthcare *Düsing, Christoph; Cimiano, Philipp* 411 Determining Association between Fatal Heart Failure and Chronic Kidney Disease: A Machine Learning Approach *Haque, Adiba; Kabir, Anika Nahian; Islam, Maisha ; Monjur, Mayesha; Rhaman, Md. Khalilur ; Mostakim, Moin* 423 Cost-effective Models for Detecting Depression from Speech *Tasnim, Mashrura; Novikova, Jekaterina* 448 COVID-19 Detection from Cough Recording by means of Explainable Deep Learning *Mercaldo, Francesco; Di Giammarco, Marcello; Tavone, Michele; Iadarola, Giacomo; Cesarelli, Mario; Santone,*

		Estimation on Sonar Images *Mohan Kashyap Pargi, Elham Bagheri; Ricardo Shirota Filho; Eng Huat Khoo, Farshad Shishehchian* 149 Fourier-RNNs for Modelling Noisy Physics Data *Vignesh Gopakumar*	Relation Extraction from Financial Documents *Tobias Deußer; Syed Musharraf Ali; Lars Hillebrand; Desiana Nurchalifah; Basil Jacob; Christian Bauckhage; Rafet Sifa* 482 A Novel Multimodal Situated Spoken Dialog System for Human Robot Communication in Emergency Evacuation *Sheuli Paul; Michael Sintek; Marius C Silaghi; Veton Kepuska; Liam Robertson*	*Antonella ; Martinelli, Fabio* 501 What If Kidney Tumor Segmentation Challenge (KiTS19) Never Happened *Mushtaq, Erum; Ding, Jie; Avestimehr, Salman* 43 Automatic Sleep Stage Classification with Optimized Selection of EEG Channel *Molinas, Marta; Stenwig, Håkon; Soler, Andres; Furuki, Junya; Suzuki, Yoko; Abe, Takashi*
	15:20	**Coffee Break**		
		Parallel Sessions (20 minutes each paper)		
	15.40	**<u>Special session: ML in Health II (in person session):</u>** Conference Room 1 **Chair: Ester Zumpano & Carmela Comito** 413 An Application of Document Embeddings to Identifying Challenging Behaviors in Autism Spectrum Disorder From Clinical Notes *Atchison, Abigail; Pinto, Gabriela; Woodward, Ali; Stevens, Elizabeth; Dixon, Dennis; Linstead, Erik* 464 Dejà vu: Recurrent Neural Networks for health wearables data forecast *Matias, Igor; Wac, Katarzyna* 488 Using CatBoost and Other Supervised Machine Learning Algorithms to Predict Alzheimer's Disease *Jessica An*	**<u>Special Session: ML for Predictive Models in Engineering Applications III (online session)</u>** **(this session should be attended on Line 2 in Zoom)** **Chair: Shadi Banitaan** 478 GDSCAN: Pedestrian Group Detection using Dynamic Epsilon *Mingzuoyang Chen, Shadi Banitaan, Mina Maleki, Yichun Li* 487 Occupancy Detection based on WI-FI SysLog Data *Bassam Abdelghani; Mina Maleki; Shadi Banitaan; Amna Mazen* 418 On Selection of Optimal Kernel Function for Software Defect Prediction *Mohammad Azzeh; Ali Bou Nassif; Shadi Banitaan* 180 XAI-BayesHAR: A novel Framework for Human Activity Recognition with Integrated Uncertainty and Shapely Values *Dubey, Anand; Lyons, Niall; Pandey, Ashutosh; Santra, Avik*	**<u>Special session: Deep Learning and Applications (online session with online papers from different special sessions)</u>** **Chair: M. Sayed-Mouchaweh** 432 Graph-based Recommendation using Graph Neural Networks *Luigi Portinale, Christopher Irwin, Marco Dossena* 469 Utilizing Explainable AI for improving the Performance of Neural Networks *H. Sun, L. Servadei, H. Feng, M. Stephan, R. Wille, A. Santra* 474 Explainable Decision Support Tool for IoT Predictive Maintenance within the context of Industry 4.0 M. Sayed-Mouchaweh 444 Continuous and Silent User Authentication Through Mouse Dynamics and Explainable Deep Learning *Giovanni Ciaramella; Stefano Fagnano; Giacomo Iadarola; Fabio Martinelli; Francesco Mercaldo;*

		438 Predicting COVID-19 Case Counts using Twitter Image Data *Ockerman, Seth; Carrier, Erin* 428 ML Democracy: An Enhanced Voting Algorithm for Model Selection for Efficient EEG Data Assessment *Vidhyashree Nagaraju*	185 Universal Thomson Sampling Sauro, *Luigi; Faella, Marco* 288 Soil Moisture Estimation Using Hyperspectral Imagery Based on Metric Learning *Bo Tang, Weiwei Xie, Robert Moorhead, Qingmin Meng* 336 Reinforcement Learning Based Architectures for Dynamic Generation of Smart Home Services *Qiu, Mingming; Najm, Elie; Sharrock, Remi; Traverson, Bruno*	*Antonella Santone* 18 Exploring the Explicit Modelling of Bias in Machine Learning Classifiers: A Deep Multi-label ConvNet Approach *Mashael Al-Luhaybi* 503 Understanding the Generalizability of Hateful Memes Detection Models Against COVID-19-related Hateful Memes *Keyan Guo; Wentai Zhao; Jaden Mu; Nishant Vishwamitra; Ziming Zhao; Hongxin Hu* 280 Knowledge-based Deep Learning for Modeling Chaotic Systems *Elabid, Zakaria, Chakraborty, Tanujit, Hadid, Abdenour*
	17:40	**Closing Remarks**		