

**THE 18th INTERNATIONAL CONFERENCE ON MACHINE LEARNING APPLICATIONS  
(ICMLA 2019)**

**Day 1: December 16, 2019**

Conference Registration (7:00 AM to 6:00 PM)

Room: Oasis Ballroom

Light Breakfast (7:00 AM to 8:00 AM)

Room: Oasis Foyer

Welcoming Remarks (8:00AM to 8:30AM)

Chair: Taghi M. Khoshgoftaar

Keynote Speaker (8:30 AM to 9:30 AM)

Title: Broad Learning: A New Perspective on Mining Big Data

Speaker: Philip S. Yu, University of Illinois

Room: Oasis Ballroom

Coffee Break (9:30 AM to 9:45 AM)

Room: Oasis Foyer

Session 1: Machine Learning on Image Processing

Chair: Huanjing Wang

(9:45 AM to 11:45 PM)

Room: Royal Palm 1 & 2

30. Regularization Learning for Image Recognition

*Xinjie Lan, Kenneth Barner*

320. GRAM: Gradient Rescaling Attention Model for Data Uncertainty Estimation in Single Image Super Resolution

*Changwoo Lee, Ki-Seok Chung*

360. Through-Wall Pose Imaging in Real-Time with a Many-to-Many Encoder/Decoder Architecture

*Kevin Meng, Yu Meng*

210. Domain Mixture: An Overlooked Scenario in Domain Adaptation

*Sebastian Schrom, Stephan Hasler*

141. Particle Detector Simulation using Generative Adversarial Networks with Domain Related Constraints

*Gulrukh Khattak, Sofia Vallecorsa, Federico carminati, Gul Muhammad Khan*

### Session 2: Deep Learning Algorithms (I)

Chair: Joseph Prusa

(9:45 AM to 11:45 PM)

Room: Oasis A & B

133. PI-LSTM:Physics-Infused Long Short-Term Memory Network

*Shubhendu Kumar Singh, Ryuou Yang, Amir Behjat, Rahul Rai, Souma Chowdhury, Ion Matei*

373. Enhancing Decision Tree based Interpretation of Deep Neural Networks through L1-Orthogonal Regularization

*Nina Schaaf, Marco Huber, Johannes Maucher*

218. Leveraging Semi-Supervised Learning for Fairness using Neural Networks

*Vahid Noroozi, Sara Bahaadini, Nooshin Mojab, Samira Sheikhi, Philip S Yu*

106. Efficient Evolutionary Architecture Search for CNN Optimization on GTSRB

*Fabio Marco Johner, Juergen Wassner*

### Session 3: Temporal and Structural Modeling

Chair: Dingding Wang

(9:45 AM to 11:45 PM)

Room: Royal Palm 3

160. Temporal Modeling of Deterioration Patterns and Clustering for Disease Prediction of ALS Patients

*Dan Halbersberg, Boaz Lerner*

206. A Deep Structural Model for Analyzing Correlated Multivariate Time Series  
*Changwei Hu, Yifan Hu, Sungyong Seo*

343. Recurrent Dilated DenseNets for a Time-Series Segmentation Task  
*Alexander Fuchs, Robin, Franz Pernkopf*

425. State Summarization of Video Streams for Spatiotemporal Query Matching in Complex Event Processing  
*Piyush Yadav, Dibya Prakash Das, Edward Curry*

63. RF Transmitter Fingerprinting Exploiting Spatio-Temporal Properties in Raw Signal Data  
*Debashri Roy, Tathagata Mukherjee, Mainak Chatterjee, Eduardo Pasillao*

Lunch (Provided by the Conference)

(11:45 PM to 1:00 PM)

Room: Oasis Ballroom

Session 4: Recognition and Detection

Chair: Huanjing Wang

(1:00 PM to 2:40 PM)

Room: Royal Palm 1 & 2

122. Brown Planthopper Damage Detection using Remote Sensing and Machine Learning  
*Dimuthu Lakmal*

79. Generative Feature Models and Robustness Analysis for Multimedia Content Classification  
*Sunil Bharitkar*

233. Bimodal Emotion Recognition Based on Audio and Facial Parts Using Deep Convolutional Neural Networks  
*Jadisha Cornejo, Helio Pedrini*

Session 5: Machine Learning on Finance and Marketing

Chair: Dingding Wang

(1:00 PM to 2:40 PM)

Room: Oasis A & B

182. Predicting Futures Market Movement using Deep Neural Networks  
*Tong Sun, Jia Wang, Jing Ni, Yu Cao, Benyuan Liu*

211. DeepTrax: Embedding Graphs of Financial Transactions  
*C Bayan Bruss, Keegan Hines, Jonathan Rider, Antonia Gogoglou*

80. An Industry Case of Large-Scale Demand Forecasting of Hierarchical Components  
*Rodrigo Rivera, Ivan Nazarov, Ivan Maksimov, Aleksandr Pletnev, Yuke Xiang, Evgeny Burnaev*

110. Risk-Based Dynamic Pricing via Failure Prediction  
*Chi Zhang, Chetan Gupta, Seiji Joichi, Ahmed Farahat, Huijuan Shao*

#### Session 6: Text Analytics

Chair: Joseph Prusa

(1:00 PM to 2:40 PM)

Room: Royal Palm 3

315. Learning to Propose Amendments: Identifying Patterns in the Right to Information Query Log  
*Nayantara Kotoky, Saradhi Vijaya V*

161. Unsupervised Topic Model Based Text Network Construction for Learning Word Embeddings  
*Sunnie Sun Chung, Mike D'Arcy*

328. Entity Set Expansion for Detecting Fashion Trends  
*Maulik Parmar, Sagnik Sarkar*

185. Collaborative Attentive Autoencoder for Scientific Article Recommendation  
*Meshal Alfarhood, Jianlin Cheng*

#### Coffee Break

(2:40 PM to 3:00 PM)

Room: Oasis Foyer

#### Session 7: Recognition and Detection in Computer Vision

Chair: Huanjing Wang

(3:00 PM to 4:40 PM)

Room: Royal Palm 1 & 2

289. Radar-Based Human Target Detection using Deep Residual U-Net for Smart Home Applications

*Michael Stephan, Avik Santra*

45. Spatio-Temporal FAST 3D Convolutions for Human Action Recognition

*Alexandros Stergiou, Ronald Poppe*

324. Fall Detection in Video Sequences Based on a Three-Stream Convolutional Neural Network

*Guilherme Leite, Gabriel Silva, Helio Pedrini*

127. Moving Cast Shadow Detection in Video Based on New Chromatic Criteria and Statistical Modeling

*Hang Shi, Chengjun Liu*

300. Towards Real-Time Detection and Mitigation of Driver Frustration using SVM

*Sebastian Zepf, Tobias Stracke, Alexander Schmitt, Florian van de Camp, Jürgen Beyerer*

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Session 8: Multi-Agent and Robotics

Chair: Gabriel Castaneda

(3:00 PM to 4:40 PM)

Room: Oasis A & B

172. Pattern-RL: Multi-Robot Arbitrary Pattern Formation via Deep Reinforcement Learning

*Jia Wang*

443. Interpretable Approximation of a Deep Reinforcement Learning Agent as a Set of If-Then Rules

*Subramanya Prasad Nagesh Rao, Bruno Costa, Dimitar Filev*

105. A Hierarchical Model for StarCraft II Mini-Game

*Tianlin Liu, Xihong Wu, Dingsheng Luo*

372. Evaluating the Performance of the Deep Active Imitation Learning Algorithm in the Dynamic Environment of FIFA Player Agents

*Matheus P. P. Faria, Rita Julia, Lídia Tomaz*

283. Shapley Value Approximation with Divisive Clustering

*Kevin M Corder, Keith Decker*

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Session 9: Supervised Learning Applications

Chair: Karl Weiss

(3:00 PM to 4:40 PM)

Room: Royal Palm 3

434. Supervised Machine Learning Approach for Effective Supplier Classification

*Ramkumar Harikrishnakumar*

169. Classifying, Detecting, and Predicting Infestation Patterns of the Brown Planthopper in Rice Paddies

*Christopher G Harris, Y Andi Trisyono*

100. Reordering Genomic Sequences for Enhanced Classification via Compression Analytics

*Christina Ting, Renee Gooding, Richard Field, Jacob Caswell*

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CONFERENCE RECEPTION

(6:30 PM to 9:00 PM)

Room: Oasis Ballroom

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Poster Presentations: ICMLA 2019 Main Conference

Chair: Huanjing Wang and Dingding Wang

(6:30 PM to 9:00 PM)

Room: Oasis Ballroom

10. Educational Data Mining in R and Sparkling Water for Forecasting School Dropout of Students in the Engineering Courses at the University of Brasilia - UnB

*Rodrigo Fonseca Silveira, Marcelo Ladeira, Marcio Victorino*

20. Using Text Mining to Categorize the Purpose of Public Spending for the Benefit of Transparency and Accountability

*Muricio B De Jesus, Marcelo Ladeira, Gustavo Erven, Gladston Silva*

31. Leveraging Elastic Demand for Forecasting

*Houtao Deng, Ganesh Krishnan, Ji Chen, Dong Liang*

34. Locally Convex Kernel Mixtures: Bayesian Subspace Learning

*Duy H Thai, David Dunson, Hau-tieng Wu*

37. Rare Geometries: Revealing Rare Categories via Dimension-driven Statistics

*Henry Kvinge, Elin R Farnell, Jingya Li, Yujia Chen*

41. Client-Side Monitoring of HTTP Clusters Using Machine Learning Techniques

*Ricardo Filipe*

42. Learning User's Mobile Application Usage - a Deep Learning Approach

*Jingyi Shen, Omair Shafiq*

57. Machine Learning to Predict Developmental Neurotoxicity with High-throughput Data from 2D Bio-engineered Tissues

*Finn Kuusisto, Vitor Santos Costa, Zhonggang Hou, James Thomson, David Page, Ron Stewart*

64. Stochastic Gradient Descent for 0/1 Loss and its Sensitivity to Adversarial Attacks

*Meiyan Xie, yunzhe xue, Usman Roshan*

71. Modelling, Learning and Prediction of Complex Radar Emitter Behaviour

*Sabine Apfeld*

74. IsoClustering: A Generalized Framework for Local Data Clustering

*David Haley, Ehsan Kamalinejad, Jiaofei Zhong*

77. Using Bidirectional Long Short Term Memory with Attention Layer to Estimate Driver Behavior

*Shokoufeh Monjezi Kouchak, Ashraf Gaffar*

90. A Boosted Tree Machine Learning Alternative to Predictive Evaluation of Nondestructive Concrete Compressive Strength

*Ahmed Lasisi, Obanishola Sadiq, Ibrahim O Balogun, Abdulfatai Tunde-Lawal, Nii Attoh-Okine*

113. Style-aware Neural Model with Application in Authorship Attribution

*Fereshteh Jafariakinabad, Kien Hua*

121. Lean Training Data Generation for Planar Object Detection Models in Unsteady Logistics Contexts

*Laura Dörr, Felix Brandt, Anne Meyer, Martin Pouls*

126. Unsupervised Learning on the Health and Retirement Study using Geometric Data Analysis

*Reinaldo Sanchez-Arias, Roberto Batista*

128. A Machine Learning Approach to Maximizing Broadband Capacity via Dynamic DOCSIS 3.1 Profile Management

*Anastasia Gaydashenko, Sangeeta Ramakrishnan*

131. Encoding in Neural Networks

*Sunil Bharitkar*

147. AudioForesight: A Process Model for Audio Predictive Maintenance in Industrial Environments

*Dominic Henze, Klaidi Gorishti, Bernd Bruegge, Jan-Philipp Simen*

154. Cyclic Boosting - an explainable supervised machine learning algorithm

*Felix C Wick, Ulrich Kerzel, Michael Feindt*

163. Predictive Linguistic Features of Cohesion in Schizophrenia

*Amal AlQahtani*

170. Low-Power Classification using FPGA—An Approach based on Cellular Automata, Neural Networks, and Hyperdimensional Computing

*Joakim Nilsson, Niklas Karvonen*

180. Classification and Feature Extraction for User Identification for Smart Home Networks Based on Apps Access History

*Yosef Ashibani, Qusay H. Mahmoud*

181. Facility Locations Utility for Uncovering Classifier Overconfidence

*Karsten T Maurer, Walter Bennette*

184. The Machine Learning Models for Activity Recognition Applications with Wearable Sensors

*Igor Khokhlov, Leon Reznik, Rohit Bhaskar*

192. Online Causal Structure Learning in the Presence of Latent Variables

*Durdane Kocacoban, James Cussens*

204. An Analysis of Univariate and Multivariate Electrocardiography Signal Classification

*Nelly Elsayed, Anthony S. Maida, Magdy Bayoumi*

205. Pelee-Text: A Tiny Convolutional Neural Network for Multi-Oriented Scene Text Detection

*Manuel A. Córdova, Luis G. L. Decker, Jose L. Flores-Campana, Andreza A. dos Santos, Jhonatas S. Conceição, Allan Pinto, Helio Pedrini and Ricardo da S. Torres*



215. RNN-based Classifier to Detect Stealthy Malware using Localized Features and Complex Symbolic Sequence

*Sanket Shukla, Gaurav Kolhe, Setareh Rafatirad, Sai Manoj Pudukotai Dinakarrao*

217. Computer-Aided Diagnosis using Class-Weighted Deep Neural Network

*Pritam Sarkar, Vandad Davoodnia, Ali Etemad*

220. Physics-guided Neural Network with Model Discrepancy Based on Upper Troposphere Wind Prediction

*Ken-ichi Fukui, Junya Tanaka, Tomohiko Tomita, Masayuki Numao*

224. Evaluating the Transferability and Adversarial Discrimination of Convolutional Neural Networks for Threat Object Detection and Classification within X-Ray Security Imagery

*Yona Falinie A. Gaus, Neelanjan Bhowmik, Samet Akcay, Toby Breckon*

227. When to Pull Starting Pitchers in Major League Baseball? A Data Mining Approach

*Michael Woodham, Jason Hawkins, Ankita Singh, Shayok Chakraborty*

247. Discovering Programmer Intention Behind Written Source Code

*Gadiel Sznaier Camps, Nicolas Bohm Agostini, David R Kaeli*

256. Word Embedding by Combining Resources and Integrating Techniques

*Kazem Qazanfari, Abdou Youssef*

258. A Comparative Analysis of Unsupervised Learning Techniques for Anomaly Detection in Railway Systems

*Macilio S Ferreira, Lucio F. Vismari, Paulo S. Cugnasca, Jorge Rady Almeida Junior, João B. Camargo Junior, Guilherme Kallemback*

264. Context-Aware Autonomous Driving Using Meta-Reinforcement Learning.

*Yesmina Jaafra, Aline Deruyver, Jean-Luc Laurent, Mohamed Saber Naceur*

284. Predicting Louisiana Public High School Dropout through Imbalanced Learning Techniques

*Marmar Orooji, Jianhua Chen*

293. LoGANv2: Conditional Style-Based Logo Generation with Generative Adversarial Networks

*Cedric R Oeldorf, Gerasimos Spanakis*

301. Explainable Density-based Approach for Self-Driving Actions Classification

*Eduardo Soares, Plamen Angelov, Dimitar Filev, Bruno Costa, Marcos Castro, Subramanya P Nagesh Rao*

303. Identifying Laguerre-Gaussian Modes using Convolutional Neural Network

*Safura Sharifi, Yaser Banadaki, Elisha Siddiqui, Savannah Cuzzo, Narayan Bhusal, Lior Cohen, Austin Kalasky, Nik Prajapati, Rachel Soto-Garcia, Sofia Brown, Irina Novikova, Eugeny Mikhailov, Georgios Veronis, Jonathan Dowling*

308. Denoising Internet Delay Measurements using Weak Supervision

*Anirudh Muthukumar, Ram Durairajan*

313. Scalable Data Parallel Approaches to Anomaly Detection in Climate Data using Gaussian Processes

*Krishna Karthik Gadiraju, Bharathkumar Ramachandra, Ashwin Shashidharan Benjamin Dutton, Ranga Vatsavai*

327. Advanced Decision Making and Interpretability through Neural Shrubs

*Kyle A Caudle, Randy C. Hoover, Shashwati Shradha, Aaron Alphonsus*

342. Region Based Anomaly Detection with Real-Time Training and Evaluation

*Philip A Adey*

359. Extracting Cryptocurrency Price Movements from the Reddit Network Sentiment

*Stephen Wooley, Andrew Edmonds, Arunkumar Bagavathi, Siddharth Krishnan*

369. Frosting Weights for Better Continual Training

*Xiaofeng Zhu, Feng Liu, Goce Trajcevski, Dingding Wang*

380. Music Mood Classification using Convolutional Neural Networks

*Teng-Sheng Moh*

381. Feature Changes in Source Code for Commit Classification into Maintenance Activities

*Richard V. R. Mariano, Geanderson Esteves dos Santos, Markos Vigiato de Almeida, Wladimir Cardoso Brandão*

394. An Application of Autonomous Learning Multimodel System for Localization in Industrial Warehouse Storage Rack

*Sheng Huang*

405. Root Cause Detection Among Anomalous Time Series Using Temporal State Alignment

*Sayan Chakraborty, Smit Shah, Kiumars Soltani, Anna Swigart*

415. Asynchronous Multitask Reinforcement Learning with Dropout for Continuous Control  
*Zilong Jiao, Jae Oh*

416. End-to-End Reinforcement Learning for Multi-Agent Continuous Control  
*Zilong Jiao, Jae Oh*

418. Maximizing Customer Lifetime Value using Stacked Neural Networks: An Insurance Industry Application  
*Ismael Moreno, Gadiel Desirena, Armando Diaz, Daniel Garcia, Jalil Desirena*

422. Face Recognition Using Segmentation Technology  
*Jiangjiang Liu, Fei Gao*

428. Assessing Wireless Data Services with Machine Learning and Geostatistics  
*Glenn Bruns, Jose Mijangos*

439. Hateful Speech Detection in Public Facebook Pages for Bengali Language  
*Alvi Md. Ishmam*

440. A Comparative Analysis of Traditional and Deep Learning-based Anomaly Detection Methods for Streaming Data  
*Mohsin Munir, Muhammad Ali Chattha, Andreas Dengel Sheraz Ahmed*

## **Day 2: December 17, 2019**

Conference Registration (7:00 AM to 6:00 PM)

Room: Oasis Foyer

Light Breakfast (7:00 AM to 8:00 AM)

Room: Oasis Foyer

Keynote Speaker (8:30 AM to 9:30 AM)

Chair: Taghi M. Khoshgoftaar

Title: Deep Learning as a Service: Guaranteeing Robustness Against Deception

Speaker: Ling Liu, Georgia Institute of Technology

Room: Oasis Ballroom

Coffee Break (9:30 AM to 9:45 AM)

Room: Oasis Foyer

Session 10: Machine Learning Algorithms (I)

Chair: Huanjing Wang

(9:45 AM to 11:45 PM)

Room: Royal Palm 1 & 2

82. Active Learning for Feasible Region Discovery

*Nicolas Knudde, Ivo Couckuyt, Kohei Shintani, Tom Dhaene*

92. Independent Component Analysis Based On Mutual Dependence Measures

*Ze Jin, David Matteson, Tianrong Zhang*

134. Domain-Invariant Regression under Beer-Lambert's Law

*Ramin Nikzad-Langerodi, Werner Zellinger, Susanne Saminger-Platz, Bernhard A. Moser*

168. Multiple Learning for Regression in Big Data

*Xiang Liu, Ziyang Tang, Huyunting Huang, Tonglin Zhang, Baijian Yang*

295. Kernel Selection for Modal Linear Regression: Optimal Kernel and IRLS Algorithm

*Yamasaki Ryoya, Toshiyuki Tanaka*

Session 11: Deep Learning Applications

Chair: M. Arif Wani

(9:45 AM to 11:45 PM)

Room: Oasis A & B

156. Deep Neuronal Based Classifiers for Wireless Multi-Hop Network Mobility Models

*Daniel Gutierrez, Sergio Toral*

62. Deep Learning Approach to Trademark International Class Identification

*Girish Showkatramani, Nidhi Khatri, Arlene Landicho, Darwin Layog*

158. LSTM based Bearing Fault Diagnosis of Electrical Machines using Motor Current Signal  
*Russell Sabir, Daniele Rosato, Sven Hartmann, Clemens Guehmann*

191. Long-Short Term Memory Network for Detecting CRISPR Arrays  
*Shantanu Deshmukh, Philip Heller, Natalia Khuri*

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Session 12: Object Detection

Chair: Dingding Wang

(9:45 AM to 11:45 PM)

Room: Royal Palm 3

262. An Edge Computing Visual System for Vegetable Categorization  
*Chang Liu, Xizhe Wang, Jing Ni, Yu Cao, Benyuan Liu*

123. Deep Learning-Based Object Detection for Digital Inspection in the Mining Industry  
*Thiago D'Angelo, Marina Mendes, Breno Keller, Rafael Ferreira, Saul Delabrida, Ricardo Rabelo, Hector Azpuruu, Andrea Bianchi*

348. On the Performance of Extended Real-time Object Detection and Attribute Estimation to Within Urban Scene Understanding  
*Khalid Dr Ismail, Toby Breckon*

213. MobileNet-Tiny: A Deep Neural Network-based Real-Time Object Detection for RaspberryPi  
*Nithesh Sanjay, Ali Ahmadinia*

325. Experimental Exploration of Compact Convolutional Neural Network Architectures for Non-Temporal Real-time Fire Detection  
*Ganesh Samarth C.A., Neelanjan Bhowmik, Toby Breckon*

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Lunch (Provided by the Conference)

(11:45 PM to 1:00 PM)

Room: Oasis Ballroom

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Session 13: Text Mining

Chair: Dingding Wang

(1:00 PM to 2:40 PM)

Room: Royal Palm 1 & 2

116. Text Similarity in Vector Space Models: A Comparative Study  
*Omid Shahmirzadi, Kenneth Younge, Adam Lugowski*

353. Suggestion Mining from Online Reviews using Random Multimodel Deep Learning  
*Feng Liu, Liangji Wang, Xiaofeng Zhu, Dingding Wang*

257. Mining Strengths and Weaknesses of Cricket Players Using Short Text Commentary  
*Swarup Ranjan Behera, Parag Agrawal, Amit Awekar, Saradhi Vijaya V*

299. Does Semantic Search Performs Better than Lexical Search in the Task of Assisting Legal Opinion Writing?  
*Daniel de S. C. Pedroso, Marcelo Ladeira, Thiago P Faleiros*

#### Session 14: Deep Learning Algorithms (II)

Chair: Huanjing Wang

(1:00 PM to 2:40 PM)

Room: Oasis A & B

349. Feedback Learning for Improving the Robustness of Neural Networks  
*Chang Song, Zuoguan Wang, Hai Li*

152. Disentangling and Learning Robust Representations with Natural Clustering  
*Javier Antoran, Antonio Miguel*

314. Forcing Interpretability for Deep Neural Networks through Rule-based Regularization  
*Nadia El Bekri, Marco Huber*

111. Low-bit quantization and quantization-aware training for small-footprint keyword spotting  
*Yuriy Mishchenko*

#### Session 15: Social Networks and Event Mining

Chair: Karl Weiss

(1:00 PM to 2:40 PM)

Room: Royal Palm 3

362. Large-scale Gender/Age Prediction of Tumblr Users

*Yao Zhang, Changwei Hu, Yifan Hu, Tejaswi Kasturi, Matt Gillingham, Shanmugam Ramasamy, Keith Yamamoto*

363. Legislative Vote Prediction using Campaign Donations and Fuzzy Hierarchical Communities

*Scott A Wahl*

436. Evaluation of Event Impact on Key Performance Indicators

*Qiyao Wang, Ahmed Farahat, Kosta Ristovski, Chetan Gupta, Shuai Zheng*

104. Complete Rare Event Specification using StochasticTreatment: CRESST

*Debanjana Banerjee*

Coffee Break

(2:40 PM to 3:00 PM)

Room: Oasis Foyer

Session 16: Machine Learning on Imbalanced Data

Chair: Huanjing Wang

(3:00 PM to 4:40 PM)

Room: Royal Palm 1 & 2

19. Machine learning models to identify the risk of modern slavery in Brazilian cities

*Marlu Santos, Gladston Silva, Marcelo Ladeira, Gustavo Erven*

282. An Empirical Comparison of Classification Algorithms for Imbalanced Credit Scoring Datasets

*Leopoldo S Melo Junior, Franco Maria Nardini, Chiara Renso, Jose Macedo*

254. Deep Learning and Thresholding with Class-Imbalanced Big Data

*Justin Johnson, Taghi Khoshgoftaar*

338. Learning Curve Estimation with Large Imbalanced Datasets

*Aaron N Richter, Taghi Khoshgoftaar*

Session 17: Deep Learning Algorithms (III)

Chair: M. Arif Wani

(3:00 PM to 4:40 PM)

Room: Oasis A & B

76. PPD: Permutation Phase Defense Against Adversarial Examples in Deep Learning  
*Mehdi Jafarnia Jahromi, Tasmin Chowdhury, Hsin-Tai Wu, Sayandev Mukherjee*

99. Multi-Adversarial Variational Autoencoder Networks  
*Abdullah-Al-Zubaer Imran, Demetri Terzopoulos*

212. Gradient Boosted Trees with Extrapolation  
*Alexey Malistov, Arseniy Trushin*

366. Joint Regularization on Activations and Weights for Efficient Neural Network Pruning  
*Qing Yang, Wei Wen, Zuoguan Wang, Hai Li*

### Session 18: Natural Language Processing

Chair: Joseph Prusa

(3:00 PM to 4:40 PM)

Room: Royal Palm 3

279. Natural Language Generation Using Reinforcement Learning with External Rewards  
*Vidhushini Srinivasan, Sashank Santhanam, Samira Shaikh*

322. Language-Agnostic Syllabification with Neural Sequence Labeling  
*Jacob R Krantz, Maxwell Dulin, Paul De Palma*

332. Investigating Input and Output Units in Diacritic Restoration  
*Sawsan A Alqahtani*

432. Feature Separation and Selective Fusion for Aspect Term Extraction Based on Multi-Task Neural Networks  
*Hongwei Liang, Yuan Rao, Yinong Xun*

259. P-Net: Convolutional Neural Network for Multi-Task Semantic Segmentation with Uncertain Label  
*Jin-woo Lee*

### Session 19: Machine Learning for Self Driving

Chair: Huanjing Wang



(4:45 PM to 6:00 PM)

Room: Royal Palm 1 & 2

56. Ensemble Bayesian Decision Making with Redundant Deep Perceptual Control Policies  
*Keuntaek Lee, Ziyi Wang, Bogdan Vlahov, Harleen Brar, Evangelos Theodorou*

73. Automatic CNN Compression System for Autonomous Driving  
*Daichi Murata, Toru Motoya, Hiroaki Ito*

84. Discretionary Lane Change Decision Making using Reinforcement Learning with Model-based Exploration  
*Songan Zhang*

345. Colorectal Polyp Segmentation by U-Net with Dilation Convolution  
*Xinzi Sun, Pengfei Zhang, Dechun Wang, Yu Cao, Benyuan Liu*

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Session 20: Machine Learning on Acoustic Data

Chair: Joseph Prusa

(4:45 PM to 6:00 PM)

Room: Oasis A & B

419. Predicting Music Popularity Using Music Charts  
*Carlos V Soares Araujo, Marco Cristo, Rafael Giusti*

196. Classifying Humpback Whale Calls to Song and Non-Song Vocalizations using Bag of Words Descriptor on Acoustic Data  
*Hamed Mohebbi-Kalkhoran, Chenyang Zhu, Matthew Schinault, Purnima Ratilal*

209. Acoustic Scene Classification Using Deep Mixture of Pre-trained Convolutional Neural Networks  
*Truc Thi Kim Nguyen, Franz Pernkopf*

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Session 21: Machine Learning Applications

Chair: Gabriel Castaneda

(4:45 PM to 6:00 PM)

Room: Royal Palm 3

174. Predictive and Prescriptive Analytics for Performance Optimization: Framework and a Case Study on a Large-Scale Enterprise System

*Indu John, Ravikumar Karumanchi, Shalabh Bhatnagar*

193. Hydropower Optimization Using Split-Window, Meta-Heuristic and Genetic Algorithms

*Jivitesh Sharma, Bernt Viggo Matheussen, Ole-Christoffer Granmo, Sondre Glimsdal*

186. T-REC: Towards Accurate Bug Triage for Technical Groups

*Cícero A De Lara Pahins, Fabrício Marinho, Thiago Marques, Larissa M Almeida, Arthur Batista*

CONFERENCE BANQUET

(6:45 PM to 9:00 PM)

Invited Speaker: Daniel Flynn

FAU VP for Research

Room: Oasis Ballroom

***Day 3: December 18, 2019***

Conference Registration (7:00 AM to 6:00 PM)

Room: Oasis Foyer

Light Breakfast (7:00 AM to 8:00 AM)

Room: Oasis Foyer

Keynote Speaker (8:30 AM to 9:30 AM)

Chair: Taghi M. Khoshgoftaar

Title: Declarative Machine Learning

Speaker: Flavio Villanustre, LexisNexis Risk Solutions

Room: Oasis Ballroom

Coffee Break (9:30 AM to 9:45 AM)

Room: Oasis Foyer

Session 22: Machine Learning Algorithms (II)

Chair: Huanjing Wang

(9:45 AM to 12:00 PM)

Room: Royal Palm 1 & 2

383. FlexAdapt: Flexible Cycle-Consistent Adversarial Domain Adaptation  
*Akhil Mathur, Anton Isopoussu, Fahim Kawsar, Nadia Berthouze, Nicholas D. Lane*

340. Distill-to-Label: Weakly Supervised Instance Labeling Using Knowledge Distillation  
*Jayaraman J. Thiagarajan, Satyananda Kashyap, Alexandros Karargyris*

318. Adapting Standard External Clustering Metrics for Repetitive, Noisy Observations  
*Dan Ventura*

138. Prune and Replace NAS  
*Kevin A. Laube*

329. Fuzzy-Rough Cognitive Networks: Building Blocks and Their Contribution to Performance  
*Marnick Vanloffelt, Gonzalo Nápoles, Koen Vanhoof*

288. Performance Effectiveness of Multimedia Information Search Using the Epsilon-Greedy Algorithm  
*Lijing Kuang, Clement Leung*

287. A Robust, Dual-Output Deep Neural Network for Bug Triaging to Teams and Developers.  
*Christopher A Choquette-Choo, David Sheldon, John Alphonso-Gibbs, Jonny Proppe*

Session 23: Machine Learning on Healthcare and Medical Data

Chair: Dingding Wang

(9:50 AM to 12:00 PM)

Room: Oasis A & B

103. Non-Linear Feature Selection for Prediction of Hospital Length of Stay  
*Sadaf Kabir, Leily Farrokhvar*

387. Deep Ensemble Network for Quantification and Severity Assessment of Knee Osteoarthritis  
*mohammed A Bany, Ashraf Moinuddin, Ming Ta Michael Lee, Yanfei Zhang, Vida Abedi, Ramin Zand, Mohammed Yeasin*

78. Data-Driven Target Controlled Infusion Algorithm for Norepinephrine to Prevent Hypotension Associated with Labour Epidural: A Reinforcement Learning Approach  
*Sherwin Davoud, Weinan Gao, Efrain Riveros-Perez*

130. Optic-Net: A Novel Convolutional Neural Network for Diagnosis of Retinal Diseases from Optical Tomography Images  
*Sharif Amit Kamran, Sourajit Saha, Ali Shihab Sabbir, Alireza Tavakkoli*

7. Multi-Resolution 3D Dual Path Squeeze and Excitation Network for Pulmonary Nodule Classification  
*Enqing Dong, Wenshuo Xiong*

#### Session 24: Anomaly Detection

Chair: Richard Bauder

(9:50 AM to 12:00 PM)

Room: Royal Palm 3

59. AudiDoS: Real-Time Denial-of-Service Adversarial Attacks on Deep Audio Models  
*Taesik Gong, Alberto Ramos, Akhil Mathur, Sourav Bhattacharya, Fahim Kawsar*

344. On the Impact of Object and Sub-Component Level Segmentation Strategies for Supervised Anomaly Detection within X-ray Security Imagery  
*Neelanjan Bhowmik, Yona Falinie A. Gaus, Samet Akcay, Jack Barker, Toby Breckon*

424. A Deep Learning Approach to Distributed Anomaly Detection for Edge Computing  
*Okwudili M Ezeme, Qusay Mahmoud, Akramul Azim*

225. Time Series Anomaly Detection from a Markov Chain Perspective  
*Iman Vasheghani Farahani, Russell E King, Michael Kay, Brad Klenz, Alex Chien*

237. An Encoder-Decoder Based Approach for Anomaly Detection with Application in Additive Manufacturing  
*Baihong Jin, Yingshui Tan, Yuxin Chen, Alexander Nettekoven, Ufuk Topcu, Yisong Yue, Alberto L Sangiovanni-Vincentelli*

269. Evaluating Unsupervised Anomaly Detection Models to Detect Faults in Heavy Haul Railway Operations  
*David F N Oliveira, Lucio F. Vismari, Jorge Rady Almeida Junior, Paulo S. Cugnasca, João B. Camargo Junior, Eduardo Marreto, Debora Doimo, Leandro Almeida, Rafael Gripp, Marcelo Neves*

117. Detection of False Data Injection Attacks in Cyber-Physical Systems using Dynamic Invariants

*Kiyoshi Nakayama, Nikhil Muralidhar, Chenrui Jin, Ratnesh Sharma*

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Industry and Government Invited Speaker

Chair: Flavio Villanustre

(9:45 AM to 12:05 PM)

Room: Oasis C

Speaker 1: Roger Dev

(9:45 AM to 10:25 AM)

Title: TextVectors – Machine Learning for Textual Data

Speaker 2: Dan Camper

(10:25 AM to 10:55 AM)

Title: Efficient Levenshtein Matching in HPC Systems

Speaker 3: Roger Dev

(10:55 AM to 11:35 AM)

Title: Improving Accuracy with ML Decision Trees

Speaker 4: David deHilster

(11:35 AM to 12:05 PM)

Title: Extracting Rich Data Points from unstructured Text for Machine Learning Using NLP++

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Lunch (Provided by the Conference)

(12:00 PM to 1:00 PM)

Room: Oasis Ballroom

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Special Session Presentations

Session 1: Predictive Models in Engineering Applications I

Chair: Shadi Bani Taan

(1:00 PM to 3:00 PM)

Room: Royal Palm 1 & 2

446. Semi-Supervised Discriminative Transfer Learning in Cross-Language Text Classification.  
*Mingon Kang, Ashis Biswas, Kim Dongchul, Jean Gao*

474. Inducing Embeddings for Rare Words through Morphological Decomposition, Stemming and Bidirectional Translation.  
*Xiaotao Li, Shujuan You, Wai Chen*

476. A Study on Software Metric Selection for Software Fault Prediction.  
*Huanjing Wang, Taghi Khoshgoftaar*

480. Naive Bayes with Correlation Factor for Text Classification Problem.  
*Jiangning Chen, Zhibo Dai*

481. Semantic Label Prediction of Mammography Based on CC and MLO Views.  
*Xiaomeng Wang, Jiyun Li, Chen Qian*

486. Mining the Highway-Rail Grade Crossing Crash Data: A Text Mining Approach.  
*Samira Soleimani, Ali Mohammadi, Jianhua Chen, Michael Leitner*

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## Session 2: Topological Data Analysis in Machine Learning I

Chair: Juan Ramirez Jr. & Ryan Kramer

(1:00 PM to 3:00 PM)

Room: Oasis A & B

585. Exposition and Interpretation of the Topology of Neural Networks.  
*Rickard Brüel Gabrielsson*

599. Path Homologies of Deep Networks.  
*Thomas Gebhart, Steve Huntsman, Samir Chowdhury*

579: A Notion of Harmonic Clustering in Simplicial Complexes.

*Stefania Ebli, Gard Spreemann*

657: Multiscale Geometric Data Analysis via Laplacian Eigenvector Cascading.

*Joshua Mike, Jose Perea*

491: Mapper Based Classifier.

*Jacek Cyranka, Alexander Georges, David Meyer*

681: Hyperparameter Optimization of Topological Features for Machine Learning Applications.

*Francis Motta, Chris Tralie*

685: Adaptive Template System: Data-Driven Feature Selection for Learning with Persistence Diagrams.

*Luis Polanco, Jose A. Perea*

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### Session 3: Machine and Deep Learning in Cybersecurity and Privacy Issues I

Chair: Seref Sagiroglu

(1:00 PM to 3:00 PM)

Room: Royal Palm 3

542. A Survey of Intrusion Detection Techniques.

*Deepthi Hassan Lakshminarayana, Nasseh Tabrizi*

545. Web User Authentication Using Chosen Word Keystroke Dynamics

*Khandaker Rahman, Deepak Neupane, Abdulrahman Zaiter, Md S Hossain*

611. Online EM monitoring of 802.11n networks using Self Adaptive Kernel Machine

*Jonathan Villain, Anthony Fleury*

556. Augmentation Anomaly Dataset Using the Sequence Generate Models.

*SungUk Shin, Inseop Lee, Changhee Choi*

549. PcapGAN: Packet Capture File Generator by Style-Based Generative Adversarial Networks.

*Dowoo Baik, Yujin Jung, Changhee Choi*

618. Exploring Adversaries to Defend Audio CAPTCHA.

*Heemany Shekhar, Melody Moh, Teng-Sheng Moh*

632. Towards the Integration of a Post-hoc Interpretation Step into the Machine Learning Workflow for IoT Botnet Detection.

*Alejandro Guerra Manzanares, Sven Nomm*

Industry and Government Invited Speaker

Chair: Flavio Villanustre

(1:00 PM to 3:00 PM)

Room: Oasis C

Coffee Break

(3:00 PM to 3:15 PM)

Room: Oasis Foyer

Session 4: Predictive Models in Engineering Applications II

Chair: Shadi Bani Taan

(3:15 PM to 4:45 PM)

Room: Royal Palm 1 & 2

487. Dimensionality Reduction for Low-Latency High-Throughput Fraud Detection on Datastreams.

*Cristian Axenie, Radu Tudoran, Stefano Bortoli, Mohamad Al Hajj Hassan, Carlos Salort Sanchez, Goetz Brasche*

493. Software Fault Prediction Based on Fault Probability and Impact.

*Salim Moudache, Badri Mourad*

495. How Can Automated Machine Learning Help Business Data Science Teams?

*Ashkan Ebadi, Yvan Gauthier, Stéphane Tremblay, Patrick Paul*



496. Ranking Clusters of Postal Codes to Improve Recruitment in the Canadian Armed Forces.  
*Ryuichi Ueno*

510. Urban Street Contexts Classification Using Convolutional Neural Networks and Streets Imagery.  
*Fahad Alhasoun, Marta C. González*

638. Hyperparameters Search Methods for Machine Learning Workflows.  
*Klara Peskova, Roman Neruda*

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### Session 5: Topological Data Analysis in Machine Learning II

Chair: Juan Ramirez Jr. & Ryan Kramer

(3:15 PM to 5:00 PM)

Room: Oasis A & B

602: Chatter Diagnosis in Milling using Supervised Learning and Topological Features Vector.  
*Melih Yesilli, Sarah Tymochko, Firas Khasawneh, Elizabeth Munch*

230: Persistent Homology Machine Learning for Fingerprint Classification.  
*Noah Giansiracusa, Robert Giansiracusa, Chul Moon*

600: Adaptive Partitioning for Template Functions on Persistence Diagrams.  
*Sarah Tymochko, Elizabeth Munch, Firas Khasawneh*

696: A topological Approach for Motion Track Discrimination  
*Colin Olson, Tegan Emerson, George Stantchev, Kason Edelberg, Michael Wilson*

636. Classification of Single-Lead Electrocardiograms: TDA Informed Machine Learning.  
*Paul Samuel Ignacio, David Uminsky*

650. Bayesian Topological Learning for Brain State Classification.  
*Farzana Nasrin, Christopher Oballe, David Boothe, Vasileios Maroulas*

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## Session 6: Machine and Deep Learning in Cybersecurity and Privacy Issues II

Chair: Seref Sagioglu

(3:15 PM to 5:00 PM)

Room: Room: Royal Palm 3

635 - An Intrusion Detection System for Multi-Class Classification based on Deep Neural Networks

*Petros Toupas, Dimitra Chamou, Konstantinos M. Giannoutakis, Anastasios Drosou, Dimitrios Tzovaras*

652 - One-class Classification to Continuously Authenticate Users Based on Keystroke Timing Dynamics

*Rasana Manandhar, Shaya Wolf, Mike Borowczak*

680 - Data Integrity of Industrial Controllers via Multi-resolution Hierarchical Time Series Clustering

*Andrew Walker, Joydeep Acharya*

572 - CheckNet: Secure Inference on Untrusted Devices

*Marcus Comiter, Surat Teerapittayanon, H. T. Kung*

714. Generation & Evaluation of Adversarial Examples for Malware Obfuscation.

*Daniel Park*

616. Anomaly Detection Using Supervised Learning and Multiple Statistical Methods

*Watson Jia, Raj M. Shukla, Shamik Sengupta*

672. An Unsupervised Framework for Anomaly Detection in a Water Treatment System

*Mayra A. Macas Carrasco, Chunming Wu*

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## Session 7: Machine and Deep Learning in Cybersecurity and Privacy Issues III

Chair: Seref Sagioglu

(5:00 PM to 6:15 PM)

Room: Royal Palm 3

489. Deep Learning versus Conventional Learning in Data Streams with Concept Drifts.  
*Sid Ryan, Roberto Corizzo, Iluju Kiringa, Nathalie Japkowicz*

498. A Comparison Between Statistical and Symbolic Learning Approaches for Generative Policy Models.  
*Graham White, Dan Cunningham, Geeth de Mel, Alessandra Russo, Mark Law, Elisa Bertino*

499. Active Learning to Improve Static Analysis  
*Maxwell Berman, Stephen Adams, Tim Sherburne, Cody Fleming, Peter Beling*

530. Machine Learning in Anomaly Detection: Example of Colluded Applications Attack in Android Devices  
*Igor Khokhlov, Michael Perez, Leon Reznik*

539. CausalConvLSTM: Semi-Supervised Log Anomaly Detection Through Sequence Modeling.  
*Steven Yen, Melody Moh, Teng-Sheng Moh*

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CONFERENCE RECEPTION

(6:30 PM to 9:00 PM)

Room: Oasis Ballroom

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Poster Presentations: ICMLA 2019 Special Sessions

(6:30 PM to 9:00 PM)

Room: Oasis Ballroom

Chair: Taghi M. Khoshgoftaar

Special Session: Machine Learning in Advanced Machine Vision

615. Image Classification of Clogs in Direct Ink Write Additive Manufacturing  
*Albert Chu*

Special Session: Machine and Deep Learning in Cyber Security and Privacy Issues

514. Causal Discovery of Cyber Attack Phases.  
*Graham Mueller, Alex Memory, Kyle Bartrem*

Special Session: Deep Learning

455. Exploiting Stereo Sound Channels to Boost Performance of Neural Network-Based Music Transcription.  
*Xian Wang, Lingqiao Liu, Qinfeng Shi*

464. An Auto Regressive Deep Learning Model for Sales Tax Forecasting from Multiple Short Time Series.  
*Elham Buxton, Kenneth Kriz, Matthew Cremeens, Jay Kim*

482. Optimizing Deep Neural Network Architecture with Enhanced Genetic Algorithm.  
*Ajay Shrestha, Ausif Mahmood*

490. Instance Segmentation of Newspaper Elements Using Mask R-CNN.  
*Abdullah Almutairi, Meshal Almashan*

552. Robustness Evaluation of Deep Learning Models Based on Local Prediction Consistency.  
*Chaoliang Zhong, Ziqiang Shi, Yasuto Yokota, Wensheng Xia, Jun Sun*

565. A Fast and Light Weight Deep Convolution Neural Network Model for Cancer Disease Identification in Human Lung(s).  
*Siva Skandha Sanagala, Suneet K. Gupta, Vijaya Kumar Koppula, Mohit Agarwal*

603. Inferring Convolutional Neural Networks' Accuracies from Their Architectural Characterizations.  
*Duc M. Hoang*

623. Deep Learning for Flood Forecasting and Monitoring in Urban Environments.  
*Charalampos Karyotis, Tomasz Maniak, Faiyaz Doctor, Rahat Iqbal, Vasile Palade, Raymond Tang*

664. Using Convolutional Neural Networks to Extract Keywords and Keyphrases: A Case Study for Foodborne Illnesses  
*Jingjing Wang, Rozita Dara*

676. Collapse Resistant Deep Convolutional GAN for Multi-Object Image Generation.  
*Elijah Bolluyt, Cristina Comaniciu*

677. Radar Gesture Recognition System in Presence of Interference using Self-Attention Neural Network.

*Souvik Hazra, Avik Santra*

690. Image Generation and Style Transfer using Conditional Generative Adversarial Networks.

*Sharada Murali, M. R. Rajati, Somasekhar Suryadevara*

726. Design of A Cost-Effective Deep Convolutional Neural Network–Based Scheme for Diagnosing Faults in Smart Grids.

*Hossein Hassani, Maryam Farajzadeh-Zanjani, Roozbeh Razavi-Far, Mehrdad Saif, Vasile Palade*

#### Special Session: Machine Learning in Health

640. Using Machine Learning to Improve Surgical Outcomes.

*Sindhura Bonthu, Priscila Rodrigues Armijo, Tiffany Tanner, Qiuming Zhu*

525. Improving Machine Learning Based Detection of Freezing of Gait Using Data Synthesis Methods.

*Nader Naghavi, Soheil Borhani, Eric Wade*

647. Understanding Early Childhood Obesity via Interpretation of Machine Learning Model Predictions.

*Xueqin Pang, Christopher B. Forrest, Félice Lê-Scherban, Aaron J. Masino*

511. Abnormal Gait Detection by Classifying Inertial Sensor Data using Transfer Learning.

*Tejul Pandit, Harshal Nahane, Dhanshree Lade, Vaibhav Rao*

577. Clinical Knowledge Graph Embedding Representation Bridging the Gap Between Electronic Health Records and Prediction Models.

*Wai Chung, Jianyu Liu, Hegler Tissot*

532. On Activity Identification Pipelines for a Low-Accuracy EEG Device.

*Ákos Rudas, Sandor Laki*

502. IoT Environmental Analyzer using Sensors and Machine Learning for Migraine Occurrence Prevention.

*Rosemarie Day, Hassan Salehi, Mahsa Javadi*

393. Feature Clustering Towards Gene Selection.

*Hanieh Marvikhorasani, Hamid Usefi*

319. Genetic Algorithms for Feature Selection in the Children and Adolescents Depression Context.

*Renata Santana, Bruno Santos, Thiago Lima, Maycoln Teodoro, Saulo Pinto, Luiz Zárate, Cristiane Nobre*

Special Session: Machine Learning for Predictive Models in Engineering Applications

458. Supervised Classification of EEG Signals with Score Threshold Regulation for Pseudo-Online Asynchronous Detection of Gait Intention.

*S. M, Shafiul Hasan, Masudur R. Siddiquee, Ou Bai*

488. An Online Incremental Clustering Framework for Real-Time Predictive Analytics on Datastreams.

*Carlos Salort Sanchez, Radu Tudoran, Stefano Bortoli, Mohamad Al Hajj Hassan, Goetz Brasche, Jan Baumbach, Cristian Axenie*

500. Machine learning of the Ultrasound Signal Travel Path effect in Estimating the Residual Life of the US Army Vehicles.

*Ramakrishna R. Valisetty*

587. Predictive Models with Resampling: A Comparative Study of Machine Learning Algorithms and Their Performances on Handling Imbalanced Datasets.

*Adithi D. Chakravarthy, Sindhura Bonthu, Chen Zhengxin, Qiuming Zhu*

589. Comparing the Modeling Powers of RNN and HMM.

*Achille Salaün, Yohan Petetin, François Desbouvries*

625. Multi-Objective Shipment Allocation using Extreme Nondominated Sorting Genetic Algorithm-III (E-NSGA-III).

*Kittichai Lavangnananda, Peerasak Wangsom*

630. A Deep Learning Approach to Modeling a Complex Multi-Variate, Temporal Thermal Problem.

*Alvaro Blazquez de Mingo, Forrest Jehlik*

644. Predictive Analytics and Statistical Learning for Waterflooding Operations in Reservoir Simulations.

*Xuan Liao, Mayank Tyagi*

694. ragamAI: A Network Based Recommender System to Arrange an Indian Classical Music Concert.

*Arunkumar Bagavathi, Siddharth Krishnan*

711. A Hybrid Collaborative Filtering Model Using Customer Search Keyword Data for Product Recommendation.

*Haram Won, Yunju Lee, Jae-Seung Shim, Hyunchul Ahn*

717. An Automatic Extraction Tool for Ethnic Vietnamese Thai Dances Concepts.

*Salem Benferhat*

Special Session: Topological Data Analysis in Machine Learning

571: Sampling Real Algebraic Varieties for Topological Data Analysis.

*Parker Edwards, Jonathan Hauenstein, Emilie Dufresne, Heather Harrington*

598. Characterizing the Shape of Activation Space in Deep Neural Networks.

*Thomas Gebhart*

540. Time-Series Data Analysis for Classification of Noisy and Incomplete Internet-of-Things Datasets.

*Luke Diaz, Michael Postol, Robert Simon*

568. A Topological Reading Lesson: Classification of MNIST using TDA.

*Adélie Garin, Guillaume Tauzin*

663. Text Classification via Network Topology: A Case Study on the Holy Quran.

*Mehmet Aktas, Esra Akbasf*

**Day 4: December 19, 2019**

Conference Registration (7:00 AM to 6:00 PM)

Room: Oasis Foyer

Light Breakfast (7:00 AM to 8:00 AM)

Room: Oasis Foyer

Tutorial 1: The Data Science landscape: foundations, tools, and practical applications

Dr. Oge Marques

Florida Atlantic University

(8:00 AM to 12:00 PM)

Room: Royal Palm 1 & 2

Session 8: Machine Learning in Health I

Chair: Ester Zumpano

(8:00 AM to 10:00 AM)

Room: Oasis C

239. An Ensemble Approach Based on Machine Learning for Stroke Screening.

*Jizhi Chen, Junzhong Gu, Yongming Wang, Xiutao Cui*

515. Convolutional Classification of Pathogenicity in H5 Avian Influenza Strains.

*Akshay Chadha, Rozita Dara, Zvonimir Poljak*

659. An Effective CNN Approach for Diabetic Retinopathy Stage Classification with Dual Inputs and Selective Data Sampling.

*Jing Ni, Qilei Chen, Chang Liu, Honghao Wang, Yu Cao, Benyuan Liu*

660. Scalable Deep Learning for Stress and Affect Detection on Resource-Constrained Devices.

*Abhijith Ragav, Nanda H. Krishna, Naveen Narayanan, Kevin J. Thelly, Vineeth Vijayaraghavan*

716. Gene Subset Selection for Transfer Learning Using Bilevel Particle Swarm Optimization.

*Hassen Dhrif*

403. Weakly Supervised Fine Tuning Approach for Brain Tumor Segmentation Problem.

*Sergey Pavlov, Alexey Artemov, Maxim Sharaev, Alexander V. Bernstein, Evgeny Burnaev*

560. Towards Real-Time Detection of Squamous Pre-Cancers from Oesophageal Endoscopic Videos.

*Xiaohong W. Gao, Barbara Braden, Stephen Taylor, Wei Pang*



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Session 9: Deep Learning I

Chair: Vasile Palade & Arif Wani

(8:00 AM to 10:00 AM)

Room: Oasis A & B

564. CSNNs: Unsupervised, Backpropagation-Free Convolutional Neural Networks for Representation Learning.

*Bonifaz Stuhr, Jürgen Brauer*

271. Deep Neural Network Compression for Image Classification and Object Detection.

*Eren Erdal Aksoy*

478. Single-Net Continual Learning with Progressive Segmented Training (PST).

*Xiaocong Du, Gouranga Charan, Frank Liu, Yu Cao*

516. Parameter Continuation Methods for the Optimization of Deep Neural Networks.

*Harsh Nilesh Pathak, Randy Paffenroth*

550. Generation of Pedestrian Pose Structures using Generative Adversarial Networks.

*James P. Spooner, Madeline Cheah, Vasile Palade, Stratis Kanarachos, Alireza Daneshkhah*

559. Anomaly Detection with Conditional Variational Autoencoders.

*Adrian A. Pol, Cecile Germain, Victor Berger, Gianluca Cerminara, Maurizio Pierini*

570. Optimal Ensembles for Deep Learning Classification: Theory and Practice.

*Wenjing Li, Randy Paffenroth*

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Session 10: Machine Learning in Energy Application I

Chair: Ilhami Colak

(8:00 AM to 10:00 AM)

Room: Royal Palm 3

335. SVM-Based Segmentation of Home Appliance Energy Measurements.

*Marc Wenninger*

567. Multi-Agent Learning for Energy-Aware Placement of Autonomous Vehicles.

*Ömer Erduran, Mirjam Minor, Lars Hedrich, Ahmad Tarraf, Frederik Ruehl, Hans Schroth*

569. Power Flow Approximation Based on Graph Convolutional Networks.

*Valentin Bolz, Johannes Ruess, Andreas Zell*

574 Hybrid Condition Monitoring for Power Electronic Systems.

*Nikola Markovic, Dorothea Kolossa, Volker Staudt, Thomas Stoetzel*

583. Domain Adaptation for Ageing State Recognition of Cables used in Power Systems

*Nathalie Morette, Thierry Ditchi, Yacine Oussar*

584. A Novel Graphical Lasso based approach towards Segmentation Analysis in Energy Game-Theoretic Frameworks.

*Hari Prasanna Das, Ioannis C. Konstantakopoulos, Aummul Baneen Manasawala, Tanya Veeravalli, Huihan Liu, Costas J. Spanos*

Coffee Break (10:00 AM to 10:15 AM)

Room: Oasis Foyer

Session 11: Machine Learning in Health II

Chair: Carmela Comito

(10:15 AM to 12:00 PM)

Room: Oasis C

334. 3D Deformable Convolutions for MRI Classification.

*Marina Pominova, Ekaterina Kondrateva, Maxim Sharaev, Sergey Pavlov, Alexander V. Bernstein, Evgeny Burnaev*

505. Radar-based Non-Intrusive Fall Motion Recognition using Deformable Convolutional Neural Network.

*Yogesh Shankar, Souvik Hazra, Avik Santra*

648. Knee Bone Segmentation on Three-Dimensional MRI

*Rania Almajalid, Juan Shan, Ming Zhang*

518. Depression Detection Using Feature Extraction and Deep Learning from sMRI Images

*Marzieh Mousavian, Jianhua Chen, Steven Greening*

462. Weakly Supervised Deep Learning for Detecting and Counting Dead Cells in Microscopy Images.

*Siteng Chen, Ao Li, Kathleen Lasick, Julie Huynh, Linda S Powers, Janet Roveda, Andrew Paek*

605. Flow Classification and Goodness Assessment of Doppler Echo Images Using Deep Learning.

*Ghada A. Zamzmi*

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## Session 12: Deep Learning II

Chair: Vasile Palade & Arif Wani

(10:15 AM to 12:00 PM)

Room: Oasis A & B

609. Enhancing Claims Handling Processes with Insurance Based Language Models.

*Anuj Dimri, Suraj Yerramilli, Peng Lee, Sardar Afra, Andrew Jakubowski*

628. Pattern and Anomaly Localization in Complex and Dynamic Data.

*Sid Ryan, Roberto Corizzo, Iluju Kiringa, Nathalie Japkowicz*

633. Sparse Super-Regular Networks.

*Andrew W. E. McDonald, Ali Shokoufandeh*

651. Concept Saliency Maps to Visualize Relevant Features in Deep Generative Models.

*Lennart Brocki, Neo Christopher Chung*

573. Deep Learning with Domain Randomization for Optimal Filtering.

*Matthew L Weiss, Randy Paffenroth, Jacob Whitehill, Joshua Uzarski*

622. Mask R-CNN End-to-End Text Detection and Recognition.

*Rim Hantach, Philippe Calvez*

719. Learnable Visual Rhythms Based on the Stacking of Convolutional Neural Networks for Action Recognition.

*Helena Maia, Marcos Souza, Anderson Santos, Helio Pedrini, Hemerson Tacon, Andre Brito, Hugo Chaves, Marcelo Bernardes Vieira, Saulo Villelas*

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Session 13: Predictive Models in Engineering Applications III

Chair: Shadi Bani Taan

(10:15 AM to 12:00 PM)

Room: Royal Palm 3

526. Widened Learning of Index Tracking Portfolios.

*Iuliia Gavriushina, Oliver Sampson, Michael Berthold, Winfried Pohlmeier, Christian Borgelt*

548. A Cost-Sensitive Approach to Enhance the Use of ML Classifiers in Software Testing Efforts.

*Alexandre M. Nascimento, Lucio F. Vismari, Paulo S. Cugnasca, João B. Camargo Junior, Jorge Rady Almeida Junior*

557. Rare-Event Time Series Prediction: A Case Study of Solar Flare Forecasting.

*Azim Ahmadzadeh, Berkay Aydin, Dustin J. Kempton, Manolis K. Georgoulis, Sushant S. Mahajan, Maxwell Hostetter, Rafal A. Angryk*

563. Hierarchical Temporal Memories Prediction Performance and Robustness to Faults on Multivariate Time Series.

*Mathieu Jégou, Pierre Chevaillier, Pierre De Loor*

580. Comparing Learning-Based Methods for Identifying Disaster-Related Tweets.

*Nasser A. Assery, Xiaohong Yuan, Sultan Almalki, Kaushik Roy, Xiuli Qu*

591. Sparse Feature Extraction for Activity Detection Using Low-Resolution IR Streams.

*Yordanka Karayaneva, Sara Sharifzadeh, Yanguo Jing, Kevin Chetty, Bo Tan*

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Lunch (Provided by the Conference)

(12:00 PM to 1:00 PM)

Room: Oasis Ballroom

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Tutorial 2: Running and analyzing machine learning experiments in the cloud with AWS, Python, and R

Dr. Aaron Ritcher

Modernizing Medicine

(1:00 PM to 5:00 PM)

Room: Royal Palm 1 & 2

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Session 14: Machine Learning in Health III

Chair: Carmela Comito

(1:00 PM to 2:00 PM)

Room: Oasis C

229. Comprehend Medical: A Named Entity Recognition and Relationship Extraction Web Service.

*Mohammed A. Khalilia, Parminder Bhatia, Busra Celikkaya, Selvan Senthivel*

272. Towards Fast and Unified Transfer Learning Architectures for Sequence Labeling.

*Kristjan Arumae, Parminder Bhatia, Busra Celikkaya*

544. Hypergraph Link Prediction: Learning Drug Interaction Networks Embeddings.

*Maria L. Vaida*

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Session 15: Deep Learning III

Chair: Vasile Palade & Arif Wani

(1:00 PM to 2:00 PM)

Room: Oasis A & B

673. Hexagonal Image Processing in the Context of Machine Learning: Conception of a Biologically Inspired Hexagonal Deep Learning Framework.

*Tobias Schlosser*

554. A Stochastic Variance Reduced Nesterov's Accelerated Quasi-Newton Method.

*Sota Yasuda, Shahrzad Mahboubi, Indrapriyadarsini Sendilkumaar, Hiroshi Ninomiya, Hideki Asai*

453. Automated Stenosis Classification of Carotid Artery Sonography using Deep Neural Networks.

*Tony E. Lindsey*

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Session 16: Predictive Models in Engineering Applications IV

Chair: Shadi Bani Taan

(1:00 PM to 2:00 PM)

Room: Royal Palm 3

691. Predictive Modeling Using Online SVM for Indoor Positioning with Sensor Data Streams.

*Sheng Huang*

705. The Effect of Time on the Maintenance of a Predictive Model.

*Joffrey Leevy, Taghi Khoshgoftaar, Richard Bauder, Naeem Seliya*

712. Utilizing Evolutionary Algorithms to Design Granular Materials for Industrial Applications

*Gary W. Delaney*

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Coffee Break (2:00 PM to 2:15 PM)

Room: Oasis Foyer

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Session 17: Machine Learning Applications in Education I

Chair: Halil Ibrahim Bulbul

(2:15 PM to 3:30 PM)

Room: Oasis C

234. Deep Knowledge Tracing On Floor/Ceiling Skills and Limited Data.

*Ange Adrienne Nyamen Tato, Roger Nkambou*

698. Uncertainty-aware Personalized Readability Assessments for Second Language Learners.

*Yo Ehara*

277. Analysis of Forest Fire Data using Neural Network Rule Extraction with Human Understandable Rules.

*Osama A Elsarrar, Marjorie Darrah, Richard Devine*

620. A Voice Interactive Multilingual Student Support System using IBM Watson.

*Kennedy Ralston, Yuhao Chen, Haruna Isah, Farhana Zulkernine*

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Session 18: Machine Learning in Energy Application II

Chair: Ilhami Colak

(2:15 PM to 3:15 PM)

Room: Oasis A & B

617. Decision Tree Classification of Daily Total Photovoltaic Energy Generation Data Considering Meteorological Conditions.

*Faten Faten Ayadi, Mehmet Yesilbudak, Ilhami Colak, Naci Genc*

661. Coordination of PV Smart Inverters Using Deep Reinforcement Learning for Grid Voltage Regulation.

*Changfu Li, Chenrui Jin, Ratnesh Sharma*

678. DeepECO: Applying Deep Learning for Occupancy Detection from Energy Consumption Data.

*Neelanjana Pal, Purboday Ghosh*

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Session 19: Predictive Models in Engineering Applications V

Chair: Shadi Bani Taan

(2:15 PM to 3:15 PM)

Room: Royal Palm 3

626. Gender Estimation from a Hybrid of Face, Upper and Full Body Images at Varying Body Poses.

*Ogechukwu Iloanusi, Mbah Charles Chukwuma*

520. Looking for the Best Fit of a Function Over Circadian Rhythm Data.

*Fabian Fallas*

645. Partially Detected Intelligent Traffic Signal Control: Reinforcement Learning Algorithms and Environmental Adaptation.

*Rusheng Zhang, Romain Leteurre, Benjamin R. Striner, Ozan Tonguz*

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Session 20: Machine Learning Application in Education II

Chair: Halil Ibrahim Bulbul

(3:30 PM to 4:30 PM)

Room: Oasis C

668. Exploring the Landscape of Employers for Individuals with Autism Spectrum Disorder

*Kayleigh Hyde, Amy Jane Griffiths, Cristina Giannantonio, Amy Hurley-Hanson, Sneha Mathur, Erik Linstead*

679. Generating Near and Far Analogies for Educational Applications: Progress and Challenges.

*Mark Boger, Antonio Laverghetta, Nikolai Fetisov, John Licato*



704. Investigation of Factors Affecting Ownership the Household Informatics Equipment with CHAID Algorithm

*Mahmut Coskun, Halil Ibrahim Bulbul*

707. A Graph-based Analysis of Similarities between Word Frequency Distributions of Various Corpora for Complex Word Identification.

*Yo Ehara*

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### Session 21: Machine Learning in Advanced Machine Vision

Chair: Steven Puttemans

(3:15 PM to 5:15 PM)

Room: Oasis A & B

465. Mass Estimation from Images using Deep Neural Network and Sparse Ground Truth.

*Muhammad Hamdan*

509. Anyone Here? Smart Embedded Low-Resolution Omnidirectional Video Sensor to Measure Room Occupancy

*Timothy Callemein, Kristof Van Beeck, Toon Goedemé*

524. Coarse Annotation Refinement for Segmentation of Dot-Matrix Batchcodes

*Ning Jia, Christopher Holder, Stephen Bonner and Boguslaw Obara*

534. Evaluation of Deep Learning for Semantic Image Segmentation in Tool Condition Monitoring.

*Benjamin Lutz*

546. Infrared and Visible Image Fusion via Multi-Discriminators Wasserstein Generative Adversarial Network.

*Li Jing*

621. Deep Diamond Re-ID.

*Dries Hulens, Floris De Feyter, Toon Goedemé*

649 - Fusing Visual and Textual Information to Determine Content Safety.

*Rodrigo Leonardo, Amber Hu, Mohammad Uzair, Qiuqing Lu, Iris Fu, Keishin Nishiyama, Sooraj Mangalath Subrahmannian, Divyaa Ravichandran*

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Closing Remarks and Discussion

Taghi M. Khoshgoftaar

(5:15 PM to 6:00 PM)

Room: Oasis Ballroom

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