

2017 IEEE Symposium Series on Computational Intelligence (SSCI 2017)

**Honolulu, Hawaii, USA
27 November - 1 December 2017**

Pages 1-717



**IEEE Catalog Number: CFP17COI-POD
ISBN: 978-1-5386-2727-3**

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IEEE Catalog Number:	CFP17COI-POD
ISBN (Print-On-Demand):	978-1-5386-2727-3
ISBN (Online):	978-1-5386-2726-6

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- 2:30PM *The Merits of Velocity Clamping Particle Swarm Optimisation in High Dimensional Spaces* 785
Elre Oldewage, Andries Engelbrecht and Christopher Cleghorn

3:00PM	<i>Differential Evolution with Center-based Mutation for Large-scale Optimization</i>	793
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3:30PM	<i>Particle Swarm Optimization for Large-Scale Clustering on Apache Spark</i>	801
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Adaptive Dynamic Programming and Reinforcement Learning III, Chair: Yanjie Li and Yuhu Cheng, Room: Iolani 5-6 (Tapa Tower)

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2:30PM	<i>Gradient-Based Minimization for Multi-Expert Inverse Reinforcement Learning</i>	815
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3:00PM	<i>Efficient Actor-critic Algorithm with Dual Piecewise Model Learning</i>	823
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3:30PM	<i>Optimal Online Learning in Bidding for Sponsored Search Auctions</i>	831
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IEEE Artificial Life I, Chair: Joseph Lizier, Room: Iolani 3-4 (Tapa Tower)

2:00PM	<i>Fault Diagnosis in Robot Swarms: An Adaptive Online Behaviour Characterisation Approach</i>	839
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2:30PM	<i>Flexibility through Autonomous Decision-making in Robot Swarms</i>	847
	Wayne Just and Melanie Moses	
3:00PM	<i>Achieving Long-Term Progress in Competitive Co-Evolution</i>	855
	Luca Simione and Stefano Nolfi	
3:30PM	<i>Referential Communication as a Collective Property of a Brain-Body-Environment-Body-Brain System: A minimal cognitive model</i>	863
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Computational Intelligence for Engineering Solutions III, Chair: Matteo Broggi, Room: Nautilus (Kalia Tower)

2:00PM	<i>Revealing Prediction Uncertainty in Artificial Neural Network Based Reconstruction of Missing Data in Stochastic Process Records utilizing Extreme Learning Machines</i>	871
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2:30PM	<i>A P300 Brain Computer Interface based Intelligent Home Control System using a Random Forest Classifier</i>	878
	Usman Masud and Iram Baig	
3:00PM	<i>How Accurate Are Expert Estimations of Correlation?</i>	883
	Michael Beer, Zitong Gong, Francisco Diaz De La O and Vladik Kreinovich	
3:30PM	<i>Investigation of a flexible rotor system with squeeze film dampers by a combined numerical procedure</i>	892
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Computational Intelligence Applications in Smart Grid III, Chair: Pedro Faria, Room: Lehua (Kalia Tower)

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2:30PM	<i>Multi-Objective PSO for Scheduling Electricity Consumption in a Smart Neighborhood</i>	906
	Pramod Herath and Ganesh Venayagamoorthy	
3:00PM	<i>Energy Consumption Forecasting using Neuro-Fuzzy Inference Systems: Thales TRT building case study</i>	912
	Aria Jozi, Tiago Pinto, Isabel Praca, Sergio Ramos, Zita Vale, Benedicte Goujon and Petrisor Teodora	

3:30PM *Lighting Consumption Optimization using Fish School Search Algorithm* 917
Pedro Faria, Angelo Pinto, Fernando Buarque, Tiago Pinto, Zita Vale and Mahsa Khorram

**Foundations of Computational Intelligence V, Chair: Pietro Oliveto / Leonardo Franco,
Room: Hibiscus 1 (Kalia Tower)**

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Jun-ichi Matsuoka, Yuki Nakashima and Satoshi Ono

2:30PM *Does Relaxing Strict Acceptance Condition Improve Test Based Pareto Coevolution?* 930
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3:00PM *Combining Top-Down and Bottom-Up Approaches for Automated Discovery of Typed Programs* 938
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3:30PM *Improved Runtime Analysis of RLS and (1+1) EA for the Dynamic Vertex Cover Problem* 946
Pourhassan Mojgan, Roostapour Vahid and Neumann Frank

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P102 *Procedural Maze Level Generation with Evolutionary Cellular Automata* 958
Chad Adams and Sushil Louis

P103 *Recent Advances in Clonal Selection Algorithms and Applications* 966
Wenjian Luo and Xin Lin

P104 *Soft Subspace Clustering Using QPSOSC Algorithm* 974
Yangyang Li, Xiaoxu Liang, Yujing Lu and Licheng Jiao

P105 *Enhanced dynamic data-driven monitoring approach: application to a two-tank heater system* 982
Fouzi Harrou, Muddu Madakyaru, Ying Sun and Sanjula Kammammettu

P106 *Relative Torque Contribution Based Model Simplification for Robotic Dynamics Identification* 988
Weiqun Wang, Zeng-Guang Hou, Xu Liang, Shixin Ren, Liang Peng, Lincong Luo and Chengkun Cui

P107 *A Novel Stability Criterion for Fuzzy Hyperbolic Time-Delay System Based on Dynamic Delay Partitioning Approach* 995
Wang Gang, Jia Ru and Liu Jinhai

P108 *GPGPU-based Identification of Cointegrated Portfolios* 1003
Vasco Grossmann and Manfred Schimmler

P109 *An Algorithm for Diagnosis of Faults and Power Quality Problems in Radial Distribution Networks* 1009
Kelly Silva and Helton Alves

P110 *Processing Threshold in an IEEE 802.11a/g/p Receiver over GNU Radio: A Fuzzy Logic Application* 1015
Cristian David Rodriguez Rodriguez, Gustavo Puerto Leguizamon and Carlos Suarez Fajardo

P111 *Width design of circulation facilities in urban rail transit station* 1023
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P112 *Effects Selection Technique for Improving Visual Attraction via Visual Saliency Map* 1030
Natsumi Suzuki and Yohei Nakada

P113 *A Classification Method based on Self-adaptive Artificial Bee Colony* 1038
Yu Xue, Jiongming Jiang, Bing Xue and Mengjie Zhang

P114 *DMMLN: A Deep Multi-task and Metric Learning Based Network for Video Classification* 1046
Hongxin Zhi, Hongtao Yu, Shaomei Li and Chao Gao

P115	<i>Implementation of Gesture Driven Virtual Reality for Car Racing Game using Back Propagation Neural Network</i>	1053
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P117	<i>Neighborhood Field Optimization Algorithm with Dendritical Structure</i>	1068
	Nian Ao, Xu Han and Zhou Wu	
P118	<i>Law Enforcement Resource Optimization with Response Time Guarantees</i>	1074
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P119	<i>Identifying Sunni Extremist Propaganda with Deep Learning</i>	1081
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P122	<i>Evolving Morphological Robustness in Swarm Robotics</i>	1104
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P123	<i>Models of Adaptive Navigation, Inspired by Ant Transport Strategy in the Presence of Obstacles</i>	1112
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P125	<i>Opposition-based Ensemble Micro-Differential Evolution</i>	1128
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P130	<i>Combining Real-Valued and Binary Gabor-Radon Features for Classification and Search in Medical Imaging Archives</i>	1165
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P140	<i>A Sugeno-Based Search Width Decay Schedule in the ACO-R Algorithm</i>	1233
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P142	<i>Solution Recombination in an Indicator-Based Many-Objective Ant Colony Optimizer for Continuous Search Spaces</i>	1248
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P144	<i>Obstacle Avoidance of Hexapod Robots Using Fuzzy Q-Learning</i>	1262
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P145	<i>Exploiting Structure and Uncertainty of Bellman Updates in Markov Decision Processes</i>	1268
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P153	<i>Reinforcement Learning based Distance Metric Filtering Approach in Clustering</i>	1328
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P156	<i>Privacy Preserving Extreme Learning Machine Using Additively Homomorphic Encryption</i>	1350
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P158	<i>An Improved Penalty-factor based Attractive and Repulsive Particle Swarm Optimization for Nonconvex Economic Dispatch Problems</i>	1366
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P159	<i>A Residential Energy Management System with Offline Population-Based Optimization</i>	1372
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P160	<i>Stochastic Optimal Allocation of PMUs for Improving the Accuracy of State Estimation</i>	1379
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P164	<i>Robust Multi-objective Optimization of a Photovoltaic System with Grid Connection</i>	1406
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P165	<i>Model-based Fault Detection Algorithm for Photovoltaic System Monitoring</i>	1413
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P166	<i>Neighbor Risk Reporting in Vehicular Networks</i>	1418
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P167	<i>A Recurrent Neural Network Based Method for Predicting the State of Aircraft Air Conditioning System</i>	1426
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P168	<i>Predicting Metabolic Syndrome using Risk Quantification and Ensemble Methods</i>	1433
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P169	<i>Path planning of the autonomous mobile robot by using real-time rolling risk estimation with fuzzy inference</i>	1441
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P170	<i>Recurrent Kernel Online Sequential Extreme Learning Machine with Kernel Adaptive Filter for Time Series Prediction</i>	1447
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P171	<i>Spherical Optical Flow based Cornering Motion Representation for Vehicle Control</i>	1454
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P172	<i>A Bio-Inspired Spiking Neural Network Encoding Color-Biased Images</i>	1460
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P173	<i>Energy-Efficient Activity Recognition via Multiple Time-Scale Analysis</i>	1466
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P174	<i>Three-dimensional Graph Drawing by Kamada-Kawai Method with Barzilai-Borwein Method</i>	1473
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P175	<i>Improving pairwise learning to rank algorithms for Document Retrieval</i>	1480
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P176	<i>A Multivariate Time Series Approach to Forecasting Daily Attendances at Hospital Emergency Department</i>	1488
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P177	<i>Exploring the Shortest Path in PSO Communication Network</i>	1494
	Michal Pluhacek, Roman Senkerik, Adam Viktorin and Tomas Kadavy	
P178	<i>Variational Autoencoder Based Synthetic Data Generation for Imbalanced Learning</i>	1500
	Zhiqiang Wan, Yazhou Zhang and Haibo He	
P179	<i>Learning Deep Models of Optimization Landscapes</i>	1507
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P180	<i>System Identification Acceleration and Improvement with Genetic Programming Usage</i>	1517
	Nowakova Jana, Platos Jan and Hasal Martin	
P181	<i>Vanet Scalable Fuzzy Logic Based Adaptive Beaconing</i>	1524
	Mohammed Alhameed and Imad Mahgoub	

Wednesday, November 29, 8:30AM-10:30AM

Computational Intelligence and Ensemble Learning I, Chair: P. N. Suganthan, Room: Honolulu 1 (Tapa Tower)

8:30AM	<i>A Meta-heuristic with ensemble of local search operators for Urban Traffic Light Optimization</i>	1532
	Kaizhou Gao, Yicheng Zhang, Yi Zhang and Rong Su	
9:00AM	<i>Extending Unified Differential Evolution with a New Ensemble of Constraint Handling Techniques</i>	1540
	Anupam Trivedi, Nimagna Biswas, Saurajit Chakroborty and Dipti Srinivasan	
9:30AM	<i>Classification of high dimensional data using LASSO ensembles</i>	1548
	Daniel Urda, Leonardo Franco and Jose M. Jerez	
10:00AM	<i>A Heterogeneous Ensemble of Trees</i>	1555
	Wen Xin Cheng, Rakesh Katuwal, P.N. Suganthan and Xueheng Qiu	

Computational Intelligence in Dynamic and Uncertain Environments I, Chair: Shengxiang Yang, Room: Honolulu 2 (Tapa Tower)

8:30AM	<i>Using Market-based Optimisation to Solve the Dynamic Vehicle Routing Problem</i>	1561
	Callan Bright, Lyndon While, Tim French and Mark Reynolds	
9:00AM	<i>Considering Flexibility in the Evolutionary Dynamic Optimisation of Airport Security Lane Schedules</i>	1569
	Darren Chitty, Shengxiang Yang and Mario Gongora	
9:30AM	<i>Pheromone Modification Strategy for the Dynamic Travelling Salesman Problem with Weight Changes</i>	1577
	Michalis Mavrovouniotis, Mien Van and Yang Shengxiang	
10:00AM	<i>How to Select a Winner in Evolutionary Optimization?</i>	1585
	Risto Miikkulainen, Hormoz Shahrzad, Nigel Duffy and Phil Long	

Special Session: Adaptive Swarm Intelligence Algorithms, Chair: Kyle Robert Harrison, Room: Honolulu 3 (Tapa Tower)

8:30AM	<i>Distributed Co-evolutionary Particle Swarm Optimization Using Adaptive Migration Strategy</i>	1591
	Lin Shi, Zhi-Hui Zhan, Hua-qiang Yuan, Jing-Jing Li and Jun Zhang	
9:00AM	<i>Constrained Ant Brood Clustering Algorithm with Adaptive Radius: A Case Study on Aspect based Sentiment Analysis</i>	1598
	Qasem Mohammed, Thulasiraman Parimala and Ruppa Thulasiram	
9:30AM	<i>An Adaptive Particle Swarm Optimization Algorithm Based on Optimal Parameter Regions</i>	1606
	Kyle Robert Harrison, Andries P. Engelbrecht and Beatrice M. Ombuki-Berman	
10:00AM	<i>Complex Network Analysis of Firefly Algorithm Population Dynamics</i>	1614
	Magdalena Metlicka and Donald Davendra	

Adaptive Dynamic Programming and Reinforcement Learning IV, Chair: Zhen Ni and Qinglai Wei, Room: Tapa Ballroom 3 (Tapa Tower)

- 8:30AM** *A Reinforcement Learning Approach for Sequential Decision-Making Process in Smart Grid Security* 1622
Zhen Ni, Shuva Paul, Xiangnan Zhong and Qinglai Wei
- 9:00AM** *Multi-objective Energy Management for We-Energy in Energy Internet using Reinforcement Learning* 1630
Qiuye Sun, Danlu Wang, Dazhong Ma and Bonan Huang
- 9:30AM** *Discrete-Time Generalized Policy Iteration ADP Algorithm With Approximation Errors* 1636
Qinglai Wei, Li Benkai and Song Ruizhuo
- 10:00AM** *Deep Reinforcement Learning Based Optimal Defense for Cyber-Physical System in presence of Unknown Cyber-attack* 1642
Ming Feng and Hao Xu

Computational Intelligence in Control and Automation I, Chair: Yoshihiko Miyasato and Kazi Shah Nawaz Ripon, Room: Iolani 3-4 (Tapa Tower)

- 8:30AM** *Flying Vehicle Longitudinal Controller Design via Prey-Predator Pigeon-Inspired Optimization* 1650
Mostafa S. Mohamed, Haibin Duan and Li Fu
- 9:00AM** *Adaptive H-infinity Consensus Control of Euler-Lagrange Systems on Directed Network Graph by Utilizing Neural Network Approximators* 1656
Yoshihiko Miyasato
- 9:30AM** *Optimizing Bio-Inspired Propulsion Systems Using Genetic Algorithm* 1663
Kazi Shah Nawaz Ripon, Thomas Gjerde and John Martin Kleven Godo
- 10:00AM** *Learning to Regulate Rolling Ball Motion* 1671
Devesh Jha, William Yerezunis, Daniel Nikovski and Amir-massoud Farahmand

Computational Intelligence for Engineering Solutions IV, Chair: Tim Berthold, Room: Nautilus (Kalia Tower)

- 8:30AM** *Aspects of Computational Intelligence in Structural Dynamics: Structural Health Monitoring.* 1677
Nikolaos Dervilis, Elizabeth J. Cross, Ifigeneia Antoniadou, Charles Farrar and Keith Worden
- 9:00AM** *Comparison of Bayesian and Interval Uncertainty Quantification: Application to the AIRMOD Test Structure* 1684
Matteo Broggi, Matthias Faes, Edoardo Patelli, Yves Govers, David Moens and Michael Beer
- 9:30AM** *Using a Multiobjective Genetic Algorithm for Curve Approximation* 1692
Tim Sabsch, Christian Braune, Alexander Dockhorn and Rudolf Kruse
- 10:00AM** *On Advances in Development of Evolutionary Algorithms for Chosen Large Optimization Problems of Computational Mechanics* 1698
Janusz Orkisz and Maciej Glowacki

Computational Intelligence Applications in Smart Grid IV, Chair: Ahmed Saber, Room: Lehua (Kalia Tower)

- 8:30AM** *An Ensemble of Multi-objective Optimized Fuzzy Regression Models for Short-term Electric Load Forecasting* 1703
Tomas Vantuch and Michal Prilepok
- 9:00AM** *Pattern Recognition for Electric Energy Consumption Prediction in a Laboratory Environment* 1710
Guneet Bedi, Ganesh Kumar Venayagamoorthy and Rajendra Singh
- 9:30AM** *Short Term Load Forecasting using Multiple Linear Regression for Big Data* 1718
Ahmed Saber

10:00AM *A Computational Intelligence Approach for Residential Home Energy Management Considering Reward Incentives* 1724
Zhen Ni, Priti Paudyal and Xiangnan Zhong

Computational Intelligence, Cognitive Algorithms, Mind, and Brain I, Chair: Angelo Cangelossi, Room: Kahili (Kalia Tower)

8:30AM *A Type-2 Fuzzy Set induced Classification of Cognitive Load in Inter-individual Working Memory Performance based on Hemodynamic Response* 1732
Amiyangshu De, Tanuka Bhattacharjee, Amit Konar, Anca L. Ralescu and Atulya K. Nagar

9:00AM *Stable Sparse Encoding for Predictive Processing* 1739
Linda Main and John Thornton

9:30AM *Classification of EEG Signals using Fractal Dimension Features and Artificial Neural Networks* 1747
Roberto A. Vazquez and Rocio Salazar-Varas

10:00AM *Simulating and Reconstructing Neurodynamics with Epsilon-Automata Applied to Electroencephalography (EEG) Microstate Sequences* 1753
Chrystopher L. Nehaniv and Elena Antonova

Computational Intelligence in Robotic Rehabilitation and Assistive Technologies I, Chair: Javier Leonardo Castellanos, Room: Hibiscus 1 (Kalia Tower)

8:30AM *A Method for an Agile, User Centered Development of Natural User Interfaces* 1762
Karolina Bernat, Sobin Ghose, Kai von Luck and Florian Vogt

9:00AM *Korean Sign Language Recognition Using EMG and IMU Sensors Based on Group-Dependent NN Models* 1770
Seongjoo Shin, Baek Youngmi, Lee Jinhee, Eun Yongsoon and Son Sang Hyuk

9:30AM *Lexa: A Tool for Detecting Dyslexia through Auditory Processing* 1777
Alexandra Poole, Farhana Zulkernine and Catherine Aylward

10:00AM *The Effects of Adjusting Task Difficulty on Learning Motor and Cognitive Aspects of A Multitasking Task* 1782
Brittney English and Ayanna Howard

Wednesday, November 29, 10:45AM-12:45PM

Computational Intelligence and Ensemble Learning II, Chair: P. N. Suganthan, Room: Honolulu 1 (Tapa Tower)

10:45AM *Hierarchical Clustering of Ensemble Prediction Using LOOCV Predictable Horizon for Chaotic Time Series* 1789
Shuichi Kurogi, Naoto Shimoda and Kazuya Matsuo

11:15AM *Wind Speed Forecasting Using Empirical Mode Decomposition and Regularized ELANFIS* 1796
G n Pillai and K v Shihabudheen

11:45AM *Probabilistic Wind Power Forecasting: A Multi-Scheme Ensemble Technique With Gradual Coopetitive Soft Gating* 1803
Andre Gensler and Bernhard Sick

12:15PM *Short-term Wind Power Ramp Forecasting with Empirical Mode Decomposition based Ensemble Learning Techniques* 1813
Xueheng Qiu, Ye Ren, Ponnuthurai Nagarathnam Suganthan and Gehan A. J. Amaratunga

Learning in Nonstationary Environments, Chair: Ashley Prater, Room: Honolulu 2 (Tapa Tower)

10:45AM *On Ensemble Components Selection in Data Streams Scenario with Reoccurring Concept-Drift* 1821
Piotr Duda, Maciej Jaworski and Leszek Rutkowski

11:15AM	<i>Fine Tuning Lasso in an Adversarial Environment Against Gradient Attacks</i>	1828
	Gregory Ditzler and Ashley Prater	
11:45AM	<i>Detecting Changes in Sequences of Attributed Graphs</i>	1835
	Daniele Zambon, Lorenzo Livi and Cesare Alippi	
12:15PM	<i>Linear Supervised Transfer Learning for the Large Margin Nearest Neighbor Classifier</i>	1842
	Kolja Berger, Alexander Schulz, Benjamin Paassen and Barbara Hammer	

Special Session: Swarm Intelligence for Robotics and Mechatronics, Chair: Chaomin Luo Qirong Tang and Ding Lu, Room: Honolulu 3 (Tapa Tower)

10:45AM	<i>Energy-Saving Decision Making for Aerial Swarms: PSO-based Navigation in Vector Fields</i>	1848
	Palina Bartashevich, Doreen Koerte and Sanaz Mostaghim	
11:15AM	<i>On Static Control of Swarm Systems</i>	1856
	Lukas Tomaszek and Ivan Zelinka	
11:45AM	<i>A Stigmergy Based Aggregation Method for Swarm Robotic System</i>	1863
	Qirong Tang, Lu Ding, Jiaying Li, Yuan Zhang and Fangchao Yu	
12:15PM	<i>Novel Physicomimetic Bio-inspired Algorithm for Search and Rescue Applications</i>	1869
	Rahul Rajan, Michael Otte and Donald Sofge	

Adaptive Dynamic Programming and Reinforcement Learning V, Chair: K. G. Vamvoudakis and Hamidreza Modares, Room: Tapa Ballroom 3 (Tapa Tower)

10:45AM	<i>Off-policy Reinforcement Learning for Distributed Output Synchronization of Linear Multi-agent Systems</i>	1877
	Bahare Kiumarsi and Frank Lewis	
11:15AM	<i>Distributed Control of Leader-follower Systems under Adversarial Inputs Using Reinforcement Learning</i>	1885
	Rohollah Moghadam, Qinglai Wei and Hamidreza Modares	
11:45AM	<i>An Adaptive Spiking Neural Controller for Flapping Insect-scale Robots</i>	1893
	Taylor Clawson, Terrence Stewart, Chris Eliasmith and Silvia Ferrari	
12:15PM	<i>Active-Bayesian Learning for Cooperation Connectivity in Dynamic Cyber-Physical-Human Systems</i>	1900
	Kyriakos Tsoukalas, George Kontoudis and Kyriakos Vamvoudakis	

Computational Intelligence in Control and Automation II, Chair: Jun Yoneyama and Jagendra Singh, Room: Iolani 3-4 (Tapa Tower)

10:45AM	<i>Fuzzy Logic Hybrid Model with Semantic Filtering Approach for Pseudo Relevance Feedback-based Query Expansion</i>	1907
	Jagendra Singh, Mukesh Prasad, Yousef Awwad Daraghmi, Prayag Tiwari, Pranay Yadav, Neha Bharill, Mahardhika Pratama and Amit Saxena	
11:15AM	<i>Fuzzy Clustering based Modelling and Adaptive Controlling of a Flapping Wing Micro Air Vehicle</i>	1914
	Md Meftahul Ferdaus, Sreenatha G. Anavatti, Matthew A. Garratt and Mahardhika Pratama	
11:45AM	<i>Control Design of Nonlinear Networked Control Systems via Takagi-Sugeno Fuzzy Model</i>	1920
	Jun Yoneyama	

Computational Intelligence for Engineering Solutions V, Chair: Liam Comerford, Room: Nautilus (Kalia Tower)

10:45AM	<i>Multi-Objective Knowledge-Based Strategy for Process Parameter Optimization in Micro-Fluidic Chip Production</i>	1927
	Alexandru-Ciprian Zavoianu, Edwin Lughofer, Robert Pollak, Pauline Meyer-Heye, Christian Eitzinger and Thomas Radauer	

11:15AM	<i>Revealing Properties of Structural Materials by Combining Regression-based Algorithms and Nano Indentation Measurements</i>	1935
	Sebastian Huhn, Heike Sonnenberg, Stephan Eggersgluss, Brigitte Clausen and Rolf Drechsler	
11:45AM	<i>Public Private Partnership: A Design Issue</i>	1941
	Qingbin Cui, Xinyuan Zhu and Alex D'Alessio	
12:15PM	<i>Seabed Sediment Classification of Side-scan Sonar Data Using Convolutional Neural Networks</i>	1947
	Tim Berthold, Artem Leichter, Bodo Rosenhahn, Volker Berkhahn and Jennifer Valerius	

Computational Intelligence Applications in Smart Grid V, Chair: Sri Nikhil Gupta Gourisetti, Room: Lehua (Kalia Tower)

10:45AM	<i>Fault Tolerant Fusion of Office Sensor Data using Cartesian Genetic Programming</i>	1955
	Peter Bentley and Soo Ling Lim	
11:15AM	<i>Anomaly Detection in Smart Grids with Imbalanced Data Methods</i>	1963
	Christian Promper, Engel Dominik and Green Robert	
11:45AM	<i>An Introduction to Buildings Cybersecurity Framework (BCF)</i>	1971
	Michael Mylrea, Sri Nikhil Gupta Gourisetti and Andrew Nicholls	
12:15PM	<i>Multi-Scenario Use Case based Demonstration of Buildings Cybersecurity Framework Webtool</i>	1978
	Sri Nikhil Gupta Gourisetti, Michael Mylrea, Easton Gervais and Sraddhanjali Bhadra	

Computational Intelligence, Cognitive Algorithms, Mind, and Brain II, Chair: Alessandro Di Nuovo, Room: Kahili (Kalia Tower)

10:45AM	<i>Neuro-Energetic Aspects of Cognition - The Role of Pulse-Wave-Pulse Conversion in the Interpretation of Brain Imaging Data</i>	1986
	Raymond Noack, Joshua Davis, Chetan Manjesh and Robert Kozma	
11:15AM	<i>Chunking Mechanisms for a Self Improving Associative Memory Model</i>	1994
	Peter Kimani Mungai and Runhe Huang	
11:45AM	<i>EEG Analysis for Short Term Memory Modeling in Visually Explored Shape Recognition Tasks</i>	2000
	Lidia Ghosh, Amit Konar, Pratyusha Rakshit, Anca L. Ralescu and Atulya K. Nagar	
12:15PM	<i>Mutual Information Maximization for Improving and Interpreting Multi-Layered Neural Network</i>	2008
	Ryotaro Kamimura	

Computational Intelligence in Robotic Rehabilitation and Assistive Technologies II, Chair: Seongjoo Shin, Room: Hibiscus 1 (Kalia Tower)

10:45AM	<i>Synergistic Fibroblast Optimization Based Improved Reinforcement Learning For Intelligent Assistive Device</i>	2015
	Subashini Parthasarathy, Dhivyaprabha Thookanayakanpalayam Thyagarajan, Krishnaveni Marimuthu and Vedha Viyas Gopalakrishnan	
11:15AM	<i>Using Machine Learning Based on Eye Gaze to Predict Targets: An Exploratory Study</i>	2023
	Javier Leonardo Castellanos Cruz, Maria Fernanda Gomez Medina and Kimberley Dawn Adams	
11:45AM	<i>Does Appearance Matter? Validating Engagement in Therapy Protocols with Socially Interactive Humanoid Robots</i>	2030
	Breanna Lee, Jin Xu and Ayanna Howard	
12:15PM	<i>Accident Prediction Based on Motion Data for Perception-Assist with a Power-Assist Robot</i>	2036
	Kazuo Kiguchi and Ryosuke Matsuo	

Wednesday, November 29, 2:00PM-4:00PM

Feature selection and data mining, Chair: Maciej Jaworski, Room: Honolulu 2 (Tapa Tower)

- 2:00PM** *Clustering of Time Series using Hybrid Symbolic Aggregate Approximation* 2041
Keiichi Tamura and Takumi Ichimura
- 2:30PM** *Speeding Up Joint Mutual Information Feature Selection with an Optimization Heuristic* 2049
Heng Liu and Gregory Ditzler
- 3:00PM** *Evaluation of Latent Dirichlet Allocation for Document Organization in Different Levels of Semantic Complexity* 2057
Roberta Akemi Sinoara, Ricardo Brigato Scheicher and Solange Oliveira Rezende
- 3:30PM** *Proposal of l-Diversity Algorithm Considering Distance between Sensitive Attribute Values* 2065
Keiichiro Oishi, Yuichi Sei, Yasuyuki Tahara and Akihiko Ohsuga

Wednesday, November 29, 2:00PM-3:00PM

Plenary Talk: Life as an Emergent Phenomenon: Studies From Large-Scale Boid Simulation and Web Data, Speaker: Takashi Ikegami, Room: Honolulu 3 (Tapa Tower)

Wednesday, November 29, 2:00PM-4:00PM

Adaptive Dynamic Programming and Reinforcement Learning VI, Chair: Hao Xu and Avimanyu Sahoo, Room: Tapa Ballroom 3 (Tapa Tower)

- 2:00PM** *Containment Control of Heterogeneous Systems with Active Leaders of Bounded Unknown Control using Reinforcement Learning* 2073
Yongliang Yang, Ruizhuo Song, Yixin Yin, Donald Wunsch and Hamidreza Modares
- 2:30PM** *Optimal Sampling and Regulation of Uncertain Interconnected Linear Continuous Time Systems* 2080
Avimanyu Sahoo, Vignesh Narayanan and Jagannathan Sarangapani
- 3:00PM** *A Biologically-Inspired Intelligent Controller for Distributed Velocity Control of Multiple Electro-Hydraulic Servo-Systems* 2086
Mohammad Jafari and Hao Xu
- 3:30PM** *Optimal Self-Triggered Control and Network Co- design for Networked Multi-Agent System via Adaptive Dynamic Programming* 2093
Sanket Lokhande and Hao Xu

Computational Intelligence in Control and Automation III, Chair: Chris Macnab and Peter Bentley, Room: Iolani 3-4 (Tapa Tower)

- 2:00PM** *Achieving Robust Adaptive CMAC Control by Overlaying Basis Functions* 2101
Chris Macnab
- 2:30PM** *Autonomous Navigation and Landing of Airliners Using Artificial Neural Networks and Learning by Imitation* 2107
Haitham Baomar and Peter Bentley
- 3:00PM** *The Context-Aware Learning Model: reward-based and experience-based Logistic Regression Backpropagation* 2117
Joohee Suh and Dean Hougen
- 3:30PM** *Stochastic Synapse Reinforcement Learning (SSRL)* 2125
Syed Naveed Hussain Shah and Dean Frederick Hougen

Computational Intelligence for Engineering Solutions VI, Chair: Michael Beer, Room: Nautilus (Kalia Tower)

2:00PM	<i>Concise Iterative Algorithms On the State Feedback Form for Model Predictive Control and Stability Analysis of Regime Switching Systems</i>	2133
	Yipeng Yang and Neal Nesbitt	
2:30PM	<i>Cyber Civil Infrastructure and IoT for Cities</i>	2140
	Alberto Costa, Marco Proverbio and Ian Smith	
3:00PM	<i>Total Optimization of a Smart City by Multi-Population Differential Evolutionary Particle Swarm Optimization.</i>	2148
	Mayuko Sato and Yoshikazu Fukuyama	
3:30PM	<i>Smart City Digital Twins</i>	2156
	Neda Mohammadi and John E. Taylor	

Special Session: Advances in Intelligent Systems and Algorithms for Autonomous Driving and its Applications, Chair: Mahmoud Abou Nasr and Weiwei Zhang, Room: Lehua (Kalia Tower)

2:00PM	<i>Design of an Intelligent Driving System Simulation Platform and Its Application</i>	2161
	Wei Zhou, Lin Yang, Jingni Yuan, Tianxing Ying, Yang Yang and Mao Du	
2:30PM	<i>Improved Search Paths for Camera-Equipped UAVs in Wilderness Search and Rescue</i>	2168
	Michael Pelosi and Michael Brown	
3:00PM	<i>Driver Yawning Detection based on Long Short Term Memory Networks</i>	2176
	Weiwei Zhang and Jinya Su	
3:30PM	<i>Obstacle Detection in Outdoor Scenes based on Multi-Valued Stereo Disparity Maps</i>	2181
	Qian Ge and Edgar Lobaton	

Computational Intelligence, Cognitive Algorithms, Mind, and Brain III, Chair: Angelo Cangelosi, Room: Kahili (Kalia Tower)

2:00PM	<i>A Biologically Inspired Deep Neural Network of Basal Ganglia Switching in Working Memory Tasks</i>	2189
	Nadine Hajj and Mariette Awad	
2:30PM	<i>Parallelizable Deep Self-Organizing Maps for Image Classification</i>	2197
	Chathurika Wickramasinghe, Kasun Amarasinghe and Milos Manic	
3:00PM	<i>An Embodied Model for Handwritten Digits Recognition in a Cognitive Robot</i>	2204
	Alessandro Di Nuovo	
3:30PM	<i>Amplitude-Phase Relationship of Brain Dynamics Viewed by ECoG using FIR-Based Hilbert Analysis</i>	2210
	Joshua J.J. Davis and Robert Kozma	

Computational Intelligence for Multimedia, Signal and Vision Processing I, Chair: Salim Bouzerdoun and Brijesh Verma, Room: Hibiscus 1 (Kalia Tower)

2:00PM	<i>Rank Level Fusion for Kinect Gait and Face Biometric Identification</i>	2218
	Md Wasiur Rahman, Fatema Tuz Zohra and Marina Gavrilova	
2:30PM	<i>Coarse-to-Fine Foraminifera Image Segmentation through 3D and Deep Features</i>	2225
	Qian Ge, Boxuan Zhong, Bhargav Kanakiya, Ritayan Mitra, Thomas Marchitto and Edgar Lobaton	
3:00PM	<i>Optimization of Convolutional Neural Network Parameters for Image Classification</i>	2233
	Toshi Sinha, Brijesh Verma and Ali Haidar	
3:30PM	<i>Classification of the Estrous Cycle through Texture and Shape Features</i>	2240
	Leonardo Delgado, Gerardo Hernandez, Erik Zamora, Humberto Sossa, Aldrin Barreto, Francisco Ramos and Rosalina Reyes	

Wednesday, November 29, 3:00PM-4:30PM

IEEE Artificial Life II, Chair: Hiroki Sayama, Room: Honolulu 3 (Tapa Tower)

- 3:00PM** *When the Selfish Herd is too Crowded to Enter* 2247
Wen-Chi Yang
- 3:30PM** *Automatically Evolving a General Controller for Robot Swarms* 2255
John Ericksen, Melanie Moses and Stephanie Forrest

Thursday, November 30, 8:30AM-10:30AM

Tutorial: Type-2 Fuzzy Sets And Systems, Instructor: Jon Garibaldi, Room: Honolulu 1 (Tapa Tower)

Thursday, November 30, 8:30AM-9:30AM

Plenary Talk: Evolving Intelligence: Beyond Algorithms, Speaker: Russell C. Eberhart, Room: Honolulu 3 (Tapa Tower)

Thursday, November 30, 8:30AM-10:30AM

Workshop on Immune Computation, Chair: Wenjian Luo and Licheng Jiao, Room: Tapa Ballroom 1 (Tapa Tower)

- 8:30AM** *Large-Scale Data Clustering Algorithm Based on Quantum Immune Regulation Network* 2263
Yangyang Li, Xiaoyu Bai, Xiaoju Hou and Licheng Jiao
- 9:00AM** *Multi-objective artificial immune algorithm for fuzzy clustering based on multiple kernels* 2271
Ronghua Shang, Weitong Zhang, Feng Li, Licheng Jiao and Rustam Stolkin
- 9:30AM** *Negative Selection Based Anomaly Detector for Multimodal Health Data* 2279
Drew Levin, Melanie Moses, Tatiana Flanagan, Stephanie Forrest and Patrick Finley
- 10:00AM** *MiGHT, a multi-level Gillespie hybrid tracked modeling framework which allows for cellular and environmental adaptivity* 2286
Justin Melunis and Uri Hershsberg

Computational Intelligence in Control and Automation IV, Chair: Chris Macnab and Peter Bentley, Room: Iolani 3-4 (Tapa Tower)

- 8:30AM** *Using CMAC for Adaptive Nonlinear MPC and Optimal Setpoint Identification of an Activated Sludge Process* 2294
Chris Macnab and Mahsa Sadeghassadi
- 9:00AM** *Altitude Identification and Intelligent Control of a Flapping Wing Micro Aerial Vehicle using Modified Generalized Regression Neural Networks* 2302
Ahmad Jobran Al-Mahasneh, Sreenatha G Anavatti and Matthew A Garratt
- 9:30AM** *Generalizing Piecewise Affine System Identification to Local Model Networks* 2308
Tobias Muenker and Oliver Nelles
- 10:00AM** *Staged-adaptive data clustering in fuzzy min-max neural network* 2315
Yanjuan Ma, Jinhai Liu, Tailin Li and Lu Danyu Lu

Special Session: Data Representation for Learning Vehicle Intelligence, Chair: Xian Wei, Room: Nautilus (Kalia Tower)

- 8:30AM** *Traffic Sign Recognition with Transfer Learning* 2320
Xishuai Peng, Yuanxiang Li, Xian Wei, Jianhua Luo and Yi Lu Murphey

9:00AM	<i>An SVM Parameter Learning Algorithm Scalable on Large Data Size for Driver Fatigue Detection</i>	2327
	Yongquan Xie, Chengqi Bian, Yi Murphey and Dev Kochhar	
9:30AM	<i>Context Based Pedestrian Intention Prediction using Factored Latent Dynamic Conditional Random Fields</i>	2335
	Satyajit Neogi, Michael Hoy, Weng Chaoqun and Justin Dauwels	
10:00AM	<i>Convolutional Neural Network Transfer Learning for Robust Face Recognition in NAO Humanoid Robot</i>	2343
	Daniel Bussey, Alex Glandon, Lasitha Vidyaratne, Mahbubul Alam and Khan Iftekharuddin	
Symposium on Differential Evolution I, Chair: Petr Bujok, Room: Lehua (Kalia Tower)		
8:30AM	<i>Niching Community Based Differential Evolution for Multimodal Optimization Problems</i>	2350
	Ting Huang, Zhi-Hui Zhan, Xing-dong Jia, Hua-qiang Yuan, Jing-qing Jiang and Jun Zhang	
9:00AM	<i>Performance Comparison of Differential Evolution Driving Analytic Programming for Regression</i>	2358
	Roman Senkerik, Adam Viktorin, Michal Pluhacek, Tomas Kadavy and Zuzana Oplatkova	
9:30AM	<i>Enhancing Discrete Differential Evolution by Conducting Election</i>	2366
	Sedigheh Mahdavi and Shahryar Rahnamayan	
10:00AM	<i>Influence of Control Parameters Adaptation on Spread of Positive Genomes Within Populations of Selected Differential Evolution Algorithms</i>	2373
	Lenka Skanderova	
Model Based Evolutionary Algorithms I, Chair: Jose Lozano, Room: Kahili (Kalia Tower)		
8:30AM	<i>A study on Estimation of Distribution Algorithm based on a Partial Differential Equation Model</i>	2381
	Satoru Iwasaki and Toshiharu Hatanaka	
9:00AM	<i>A Proportion-Based Selection Scheme for Multi-objective Optimization</i>	2387
	Liuwei Fu, Juan Zou, Shengxiang Yang, Gan Ruan, Jinhua Zheng and Zhongwei Ma	
9:30AM	<i>Surrogate Modeling and Knowledge Extraction in GA applied to a Parameters Estimation Case</i>	2394
	Israel Cruz-Vega, Omar Sandre, Jose de Jesus Rangel-Magdaleno, Juan Manuel Ramirez-Cortes and Roberto Morales-Caporal	
10:00AM	<i>Comparisons of Different Kernels in Kriging-Assisted Evolutionary Expensive Optimization</i>	2402
	Tian Jie, Tan Ying, Sun Chaoli, Zeng Jianchao, Yu Haibo and Jin Yaochu	
Computational Intelligence in Scheduling and Network Design I, Chair: Ling Wang, Room: Hibiscus 1 (Kalia Tower)		
8:30AM	<i>A Discrete Teaching-Learning-Based Optimisation Algorithm for Hybrid Flowshop Scheduling Problem with Peak Power Consumption Constraints</i>	2410
	Jingnan Shen, Ling Wang and Jingjing Wang	
9:00AM	<i>Optimizing Different Parameters of a Discrete Firefly Algorithm for Solving the Permutation Flow Shop Problem</i>	2417
	Joel Schmid, Laura Kieser, Thomas Hanne and Rolf Dornberger	
9:30AM	<i>A Cooperative Algorithm for Energy-efficient Scheduling of Distributed No-wait Flowshop</i>	2423
	Jingjing Wang, Ling Wang, Chuge Wu and Jingnan Shen	
10:00AM	<i>Practical Train Crew Scheduling Using Improved Tabu Search</i>	2431
	Kokubo Tatsuya, Kawaguchi Shuhei and Yoshikazu Fukuyama	

Thursday, November 30, 9:30AM-10:30AM

Special Session: Swarm based algorithms, complex systems and applications I, Chair: Kromer Pavel, Room: Honolulu 3 (Tapa Tower)

- 9:30AM** *Population Mechanics and Cultural Algorithms in the Development of a Cultural Engine* 2438
Leonard Kinniard-Heether and Robert Reynolds
- 10:00AM** *Network Measures and Evaluation of Traveling Salesman Instance Hardness* 2446
Kromer Pavel, Platos Jan and Kudelka Milos

Thursday, November 30, 10:45AM-11:45AM

Plenary Talk: The Framework of Learning in the Model Space and its Applications, Speaker: Huanhuan Chen, Room: Honolulu 1 (Tapa Tower)

Thursday, November 30, 10:45AM-12:45PM

Evolutionary Computation, Chair: Gregory Ditzler, Room: Honolulu 2 (Tapa Tower)

- 10:45AM** *A Parallel Genetic Algorithm with Region Division Strategy to Solve Taxi-Passenger Matching Problem* 2453
Liu Yi-Wen, Zhang Xin-Yuan, Gong Yue-Jiao, Chen Wei-Neng and Zhang Jun
- 11:15AM** *Multi-Objective Evolution of Machine Learning Workflows* 2460
Tomas Kren, Martin Pilat and Roman Neruda
- 11:45AM** *AIRS-GA: A Hybrid Deterministic Classifier Based on Artificial Immune Recognition System and Genetic Algorithm* 2468
Ilyes Jenhani and Zied Elouedi
- 12:15PM** *A Memetic Algorithm for community detection by maximising the Connected Cohesion* 2475
Mohammad Nazmul Haque, Luke Mathieson and Pablo Moscato

Special Session: Swarm based algorithms, complex systems and applications II, Chair: Roman Senkerik, Room: Honolulu 3 (Tapa Tower)

- 10:45AM** *Deep Swarm: Nested Particle Swarm Optimization* 2483
Russell Eberhart, Doyle Groves and Joshua Woodward
- 11:15AM** *Modeling Time-Sensitive Swarm Dynamics* 2489
Hideyasu Sasaki
- 11:45AM** *How Chaotic Sequences and Generator Sequencing Affect the Particle Trajectory in PSO* 2497
Michal Pluhacek, Roman Senkerik, Adam Viktorin and Tomas Kadavy
- 12:15PM** *Partial Population Restart of Firefly Algorithm Using Complex Network Analysis* 2505
Tomas Kadavy, Michal Pluhacek, Adam Viktorin and Roman Senkerik

Computational Intelligence in Multicriteria Decision-Making I, Chair: Marde Helbig, Room: Tapa Ballroom 1 (Tapa Tower)

- 10:45AM** *A Surrogate-assisted Memetic Algorithm for Interval Multi-objective Optimization* 2512
Jing Sun, Zhuang Miao and Dunwei Gong
- 11:15AM** *Adaptive Weight Vector Assignment Method for MOEA/D* 2518
Kei Harada, Satoru Hiwa and Tomoyuki Hiroyasu
- 11:45AM** *Nondominated Sorting based on Sum of Objectives* 2527
Vikas Palakonda, Trinadh Pamulapati, Rammohan Mallipeddi, Partha P. Biswas and Kalyana Chakravarthy Veluvolu
- 12:15PM** *A Differential Evolution Algorithm for Dynamic Multi-Objective Optimization* 2535
Adekunle Rotimi Adekoya and Marde Helbig

Computational Intelligence in Control and Automation V, Chair: Weiqun Wang and Julian Belz, Room: Iolani 3-4 (Tapa Tower)

10:45AM	<i>Normalized L1 Regularization for Axis-Oblique Tree Construction Algorithms</i>	2545
	Julian Belz and Oliver Nelles	
11:15AM	<i>Identification of nonlinear dynamical systems by means of complex-valued fuzzy-neural multi-model</i>	2552
	Mario Maya and Ieroham Baruch	
11:45AM	<i>MIMO Hammerstein System Identification using LS-SVM and Steady State Time Response</i>	2559
	Ricardo Castro-Garcia, Oscar Mauricio Agudelo and Johan A. K. Suykens	
12:15PM	<i>B-Spline Neural Network and Chaotic Harmony Search Applied to Yo-yo Motion System Identification</i>	2566
	Rafael B. Grebogi, Roberto Z. Freire, Viviana C. Mariani and Leandro dos S. Coelho	

Special Session: Computational Intelligence in Intelligent Transport Systems, Chair: Enrique Dominguez, Room: Nautilus (Kalia Tower)

10:45AM	<i>Merging and Splitting Maneuver of Platoons by Means of a novel PID Controller</i>	2574
	Soumya Dasgupta, Varunkumar Raghuraman, Apratim Choudhury, Nagacharan Teja Tangirala and Justin Dauwels	
11:15AM	<i>Analysis and Prediction of the Queue Length for Non-Recurring Road Incidents.</i>	2582
	Banishree Ghosh, Justin Dauwels and Ulrich Fastenrath	
11:45AM	<i>Estimation of Travel Time from Taxi GPS Data</i>	2590
	Kelvin Lee, Anatolii Prokhorchuk, Justin Dauwels and Patrick Jaillet	
12:15PM	<i>A Data Driven Hybrid Heuristic for the Dial-A-Ride Problem with Time Windows</i>	2596
	Slim Belhaiza	

Symposium on Differential Evolution II, Chair: Radka Polakova, Room: Lehua (Kalia Tower)

10:45AM	<i>Adaptive Differential Evolution vs. Nature-Inspired Algorithms: An Experimental Comparison</i>	2604
	Petr Bujok, Josef Tvrdik and Radka Polakova	
11:15AM	<i>Distance Based Parameter Adaptation for Differential Evolution</i>	2612
	Adam Viktorin, Roman Senkerik, Michal Pluhacek, Tomas Kadavy and Ales Zamuda	
11:45AM	<i>Differential Evolution with Self-adaptive Mutation Scaling Factor</i>	2619
	Hanan Hiba, Sedigheh Mahdavi and Shahryar Rahnamayan	
12:15PM	<i>Adaptation of Population Size According to Current Population Diversity in Differential Evolution</i>	2627
	Radka Polakova, Josef Tvrdik and Petr Bujok	

Model Based Evolutionary Algorithms II, Chair: Simon Lucas and Yaochu Jin, Room: Kahili (Kalia Tower)

10:45AM	<i>Efficient Noisy Optimisation with the Multi-Sample and Sliding Window Compact Genetic Algorithms</i>	2635
	Simon M. Lucas, Jialin Liu and Diego Perez-Liebana	
11:15AM	<i>Polynomial-Chaos-Kriging-Assisted Efficient Global Optimization</i>	2643
	Pramudita Palar and Koji Shimoyama	
11:45AM	<i>Surrogate Modeling a Computational Fluid Dynamics-based Wind Turbine Wake Simulation using Machine Learning</i>	2651
	Brett Wilson, Michael Mayo and Sarah Wakes	

**Computational Intelligence in Scheduling and Network Design II, Chair: Ruibin Bai,
Room: Hibiscus 1 (Kalia Tower)**

10:45AM	<i>Variable Length Encoded Genetic Algorithm for Optimal Electrical Distribution Network Routing</i>	2659
	James R. E. Fletcher, Mark Reynolds, Tyrone Fernando, Herbert. H. C. Iu and Shervin Fani	
11:15AM	<i>Fuzzy C-Means-based Scenario Bundling for Stochastic Service Network Design</i>	2667
	Xiaoping Jiang, Ruibin Bai, Dario Landa-Silva and Uwe Aickelin	
11:45AM	<i>Improved Benders Decomposition for Capacitated Hub Location Problem with Incomplete Hub Networks</i>	2675
	Xu Yifan, Dai Weibin, Sun Xiaoqian and Wandelt Sebastian	
12:15PM	<i>General Contraction Method for Uncapacitated Single Allocation p-hub Median Problems</i>	2683
	Weibin Dai, Zhang Jun, Xiaoqian Sun and Sebastian Wandelt	

Thursday, November 30, 11:45AM-12:45PM

Computational Intelligence in Feature Analysis, Selection, and Learning in Image and Pattern Recognition I, Chair: Mengjie Zhang and Ashley Prater, Room: Honolulu 1 (Tapa Tower)

11:45AM	<i>Classification via Tensor Decompositions of Echo State Networks</i>	2691
	Ashley Prater	
12:15PM	<i>A Differential Evolution Based Feature Selection Approach Using An Improved Filter Criterion</i>	2699
	Emrah Hancer, Bing Xue and Mengjie Zhang	

Thursday, November 30, 2:00PM-4:00PM

Computational Intelligence in Feature Analysis, Selection, and Learning in Image and Pattern Recognition II, Chair: Tomoyuki Hiroyasu and Edoardo Patelli, Room: Honolulu 1 (Tapa Tower)

2:00PM	<i>Sparse Feature Selection Method by Pareto-front Exploration -Extraction of functional brain network and ROI for fMRI data-</i>	2707
	Tomoyuki Hiroyasu, Yuuki Kohri and Satoru Hiwa	
2:30PM	<i>Uncertainty Quantification Methods for Neural Networks Pattern Recognition</i>	2715
	Silvia Tolo, T.V. Santhosh, Gopika Vinod, Oparaji Uchenna and Edoardo Patelli	
3:00PM	<i>Robust and Sparse Kernel PCA and its Outlier Map</i>	N/A
	Kunzhe Wang and Huaitie Xiao	
3:30PM	<i>Dependence structure of Gabor wavelet for face recognition</i>	2730
	Li Chaorong, Xue Yu and Huang Yuanyuan	

Special Session â€

2:00PM	<i>Photometric Redshift Estimation: An Active Learning Approach</i>	2735
	Ricardo Vilalta, Raymond Sutrisno, Emille Ishida, Robert Beck, Rafael De Souza and Ashish Mahabal	
2:30PM	<i>Classification of Objects in Geosynchronous Earth Orbit Via Light Curve Analysis</i>	2743
	Walter Bennete, Kayla Zelif and Joseph Raquepas	
3:00PM	<i>Massively-Parallel Best Subset Selection for Ordinary Least-Squares Regression</i>	2749
	Fabian Gieseke, Kai Polsterer, Ashish Mahabal, Christian Igel and Tom Heskes	
3:30PM	<i>Deep-Learnt Classification of Light Curves</i>	2757
	Ashish Mahabal, Kshiteej Sheth, Fabian Gieseke, Akshay Pai, SGeorge Djorgovski, Andrew Drake and Matthew Graham	

Thursday, November 30, 2:00PM-4:30PM

IEEE Artificial Life III, Chair: Takashi Ikegami, Room: Honolulu 3 (Tapa Tower)

- 2:00PM** *Fundamentalism in a Social Learning Perspective - A Memetic Agent Model of Vegetarianism, Social Interaction Networks and Food Markets* 2765
Thomas Schmickl
- 2:30PM** *Understanding Evolutionary Dynamics in Online Social Networks* 2773
Mizuki Oka, Yasuhiro Hashimoto and Takashi Ikegami
- 3:00PM** *Introducing Simulated Stem Cells into a Bio-Inspired Cell-Cell Communication Mechanism for Structure Regeneration* 2778
Giordano Ferreira, Matthias Scheutz and Michael Levin
- 3:30PM** *Ultimate Ecology: How a Socio-Economic Game Can Evolve into a Resilient Ecosystem of Agents* 2786
Thomas Schmickl and Yannick Oswald

Thursday, November 30, 2:00PM-4:00PM

Computational Intelligence in Multicriteria Decision-Making II, Chair: Sanaz Mostaghim, Room: Tapa Ballroom 1 (Tapa Tower)

- 2:00PM** *Quantified Pareto-optimal Front Comparisons using Attainment Surfaces* 2794
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- 2:30PM** *Comparing Multi-Objective Optimization Algorithms Using an Ensemble of Quality Indicators with Deep Statistical Comparison Approach* 2801
Tome Eftimov, Peter Korosec and Barbara Korousic Seljak
- 3:00PM** *Multi-Objective Optimization Problem Mapping Based on Algorithmic Parameter Rankings* 2809
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- 3:30PM** *Comparison Study of Large-scale Optimisation Techniques on the LSMOP Benchmark Functions* 2817
Heiner Zille and Sanaz Mostaghim

Workshop: Evolving and Automomous Learning Systems, Chair: Igor Skrjanc, Room: Iolani 3-4 (Tapa Tower)

- 2:00PM** *Nurturing Promotes the Evolution of Reinforcement Learning in Changing Environments* 2825
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- 2:30PM** *Evolving Cauchy Possibilistic Clustering and Its Application to Large-Scale Cyberattack Monitoring* 2833
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- 3:00PM** *Evolving Neuro-Fuzzy System based Online Identification of a Bio-inspired Flapping Wing Micro Aerial Vehicle* 2840
Md Meftahul Ferdous, Mahardhika Pratama, Sreenatha G. Anavatti and Matthew A. Garratt

Special Session: Electric Vehicle Wired/Wireless Charging and Management, Chair: Kevin Bai, Room: Nautilus (Kalia Tower)

- 2:00PM** *A Dual-DSP Controlled SiC MOSFET based 96%-efficiency 20kW EV On-board Battery Charger Using LLC Resonance Technology* 2848
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- 2:30PM** *Multi-objective Optimization of Plug-in Electric Vehicle Charging Prices* 2853
Steffen Limmer and Tobias Rodemann

- 3:00PM** *Analytical Greedy Control and Q-Learning for Optimal Power Management of Plug-in Hybrid Electric Vehicles* 2861
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- 3:30PM** *Model-Predictive Planning for Autonomous Vehicles Anticipating Intentions of Vulnerable Road Users by Artificial Neural Networks* 2869
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Computational Intelligence for Security and Defense Applications I, Chair: Marco Cococcioni, Room: Lehua (Kalia Tower)

- 2:00PM** *A Reinforcement Learning Approach to Tackle Illegal, Unreported and Unregulated Fishing* 2877
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- 2:30PM** *Multi-Aspect Path Planning for Enhanced Ground Combat Simulation* 2885
Gustav Tolt, Johan Hedstroem, Solveig Bruvoll and Martin Asprusten
- 3:00PM** *An Energy-Efficient Embedded Implementation For Target Recognition In SAR Imageries* 2893
Megan Renz and Qing Wu
- 3:30PM** *Possibilistic Fuzzy Local Information C-Means for Sonar Image Segmentation* 2898
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Computational Intelligence in Production and Logistics Systems I, Chair: Raymond Chiong, Room: Kahili (Kalia Tower)

- 2:00PM** *Parallel Reactive Tabu Search for Job-Shop Scheduling Problems Considering Energy Management* 2906
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- 2:30PM** *Coordinated Warehouse Order Picking and Production Scheduling: A NSGA-II Approach* 2914
Ehsan Ardjmand and Dong Wook Huh
- 3:00PM** *Multi-objective optimization of single machine scheduling with energy consumption constraints* 2922
Xiaoya Liao, Rui Zhang and Raymond Chiong
- 3:30PM** *A hybrid particle swarm optimisation approach for energy-efficient single machine scheduling with cumulative deterioration and multiple maintenances* 2930
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Computational Intelligence in Scheduling and Network Design III, Chair: Rong Qu, Room: Hibiscus 1 (Kalia Tower)

- 2:00PM** *Exact and Heuristic Approaches for the Multi-Agent Orienteering Problem with Capacity Constraints* 2938
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- 2:30PM** *Genetic Algorithm for Solving Minimal Exposure Path in Mobile Sensor Networks* 2945
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- 3:00PM** *Immunization of Networks Using Genetic Algorithms and Multiobjective Metaheuristics* 2953
Asep Maulana, Marios Kefalas and Michael Emmerich
- 3:30PM** *Modified Multiobjective Evolutionary Algorithm based on Decomposition for Low-Carbon Scheduling of Distributed Permutation Flow-Shop* 2961
Enda Jiang, Ling Wang and Jiawen Lu

Friday, December 1, 8:30AM-10:30AM

Computational Intelligence in Feature Analysis, Selection, and Learning in Image and Pattern Recognition III, Chair: Huanhuan Chen and Kourosh Neshatian, Room: Honolulu 1 (Tapa Tower)

- 8:30AM** *A Predictive Performance Comparison of Machine Learning Models for Judicial Cases* 2968
Zhenyu Liu and Huanhuan Chen

9:00AM	<i>On the Existence of Feature Bundles and their Effect on Symbolic Regression Algorithms</i>	2974
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9:30AM	<i>Three Dimensional Segmentation for Cement Microtomography Images using Self-Organizing Map and Neighborhood Features</i>	2982
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10:00AM	<i>The Importance of the Activation Function in NeuroEvolution with FS-NEAT and FD-NEAT</i>	2990
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Symposium on Deep Learning I, Chair: Alessandro Sperduti, Room: Hibiscus 2 (Kalia Tower)

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9:00AM	<i>Modular Representation of Autoencoder Networks</i>	3005
	Chihiro Watanabe, Kaoru Hiramatsu and Kunio Kashino	
9:30AM	<i>GLSR-VAE: Geodesic Latent Space Regularization for Variational AutoEncoder Architectures</i>	3013
	Gaetan Hadjeres, Frank Nielsen and Francois Pachet	
10:00AM	<i>Hidden Tree Markov Networks: Deep and Wide Learning for Structured Data</i>	3020
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Friday, December 1, 8:30AM-9:30AM

Computational Intelligence Applications in Smart Grid VI, Chair: Tiago Pinto, Room: Honolulu 2 (Tapa Tower)

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	Jaime Rodriguez-Fernandez, Tiago Pinto, Francisco Silva, Isabel Praca, Zita Vale and Juan Manuel Corchado	
9:00AM	<i>Hybrid Particle Swarm Optimization of Electricity Market Participation Portfolio</i>	3034
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Plenary Talk: Revisiting Eigen's Paradox for the Evolution of Genetic Information, Speaker: Lee Altenberg, Room: Honolulu 3 (Tapa Tower)

Model Based Evolutionary Algorithms III, Chair: Weinan Xu and Yaochu Jin, Room: Coral 5

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9:00AM	<i>Interactive Genetic Algorithm with Implicit Uncertainty Evaluation for Application in Personalized Search</i>	3050
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Plenary Talk: Cyborg Intelligence, Speaker: Gang Pan, Room: Iolani 3-4 (Tapa Tower)

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Machine Learning in Intelligent Vehicle Systems, Chair: Justin Dauwels, Room: Nautilus (Kalia Tower)

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	Stanley Baek, Chang Liu, Paul Watta and Yi Murphey	
9:00AM	<i>Accurate Pedestrian Path Prediction using Neural Networks</i>	3066
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Computational Intelligence for Security and Defense Applications II, Chair: Svetlana Yanushkevich, Room: Lehua (Kalia Tower)

8:30AM *Watchlist Risk Assessment using Multiparametric Cost and Relative Entropy* **3081**
 Kenneth Lai and Svetlana Yanushkevich

9:00AM *Symptoms Detection in Eye Retina Image* **3088**
 Daniel Kostialik, Lukas Maruniak and Martin Drahansky

9:30AM *Emerging EEG and Kinect Face Fusion for Biometric Identification* **3094**
 Md Wasiur Rahman and Marina Gavrilova

10:00AM *Adversarial Authorship, Interactive Evolutionary Hill-Climbing, and AuthorCAAT-III* **3102**
 Christina Faust, Gerry Dozier, Jinsheng Xu and Michael King

Computational Intelligence in Production and Logistics Systems II, Chair: Yassine Ouazene and Farouk Yalaoui, Room: Kahili (Kalia Tower)

8:30AM *Solving the Sequential Ordering Problem Using Branch and Bound* **3110**
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9:00AM *Coordination and optimization of dynamic pricing and production decisions* **3119**
 Yassine Ouazene, Farouk Yalaoui, Russell Kelly and Tayeb Idjeraoui

9:30AM *2-Dimensional Rectangles-in-Circles Packing and Stock Cutting with Particle Swarm Optimization* **3125**
 Michal Okulewicz

10:00AM *Evaluating Decomposition Strategies to Enable Scalable Scheduling for a Real-World Multi-line Steel Scheduling Problem* **3130**
 Manal Adham, Peter Bentley and Diaz Diego

Symposium on Robotic Intelligence in Informationally Structured Space I, Chair: Chu-Kiong Loo, Room: Hibiscus 1 (Kalia Tower)

8:30AM *Collaborative Learning between Robots and Children with Potential Symptoms of a Developmental Disability* **3138**
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9:00AM *Estimation of Autonomic Nervous Activity toward Affective Human-Robot Interaction* **3143**
 Takuya Hashimoto, Keita Tsuji, Yoichi Yamazaki and Guanghao Sun

9:30AM *Pointing Gesture Detection for Human-Robot Communication in Informationally Structured Space* **3148**
 Takenori Obo, Ryosuke Kawabata and Naoyuki Kubota

10:00AM *Development of Werewolf Match System with Analysis of Human Gaze Motion* **3153**
 Satoshi Nira and Daisuke Katagami

Friday, December 1, 9:30AM-10:30AM

Panel Session: Computational Intelligence in Demand Response and Smart Grid modeling, Chair: Tiago Pinto, Room: Honolulu 2 (Tapa Tower)

IEEE Artificial Life IV, Chair: Mizuki Oka, Room: Honolulu 3 (Tapa Tower)

9:30AM *Governing the swarm* **3159**
 Martin Stefanec, Martina Szopek, Rob Mills and Thomas Schmickl

10:00AM *Robust Tracking and Behavioral Modeling of Movements of Biological Collectives from Ordinary Video Recordings* **3167**
Hiroki Sayama, Farnaz Zamani Esfahlani, Ali Jazayeri and J. Scott Turner

Symposium on Neuromorphic Cognitive Computing I, Chair: Saber Moradi, Room: Iolani 3-4 (Tapa Tower)

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10:00AM *Wide learning.* **3183**
Katarzyna Kozdon and Peter Bentley

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Computational Intelligence in Feature Analysis, Selection, and Learning in Image and Pattern Recognition IV, Chair: Mengjie Zhang and George Tambouratzis, Room: Honolulu 1 (Tapa Tower)

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Shima Afzali Vahed Moghaddam, Bing Xue, Harith Al-Sahaf and Mengjie Zhang

11:15AM *A Comparative Study of Image Classification Algorithms for Foraminifera Identification* **3199**
Boxuan Zhong, Qian Ge, Bhargav Kanakiya, Ritayan Mitra, Thomas Marchitto and Edgar Lobaton

11:45AM *Image approach to voice recognition* **3207**
Dawid Polap and Marcin Wozniak

12:15PM *The effectiveness of surrogate functions in improving the accuracy of PSO-type algorithms in an NLP task* **3214**
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Symposium on Deep Learning II, Chair: Plamen Angelov, Room: Honolulu 2 (Tapa Tower)

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11:15AM *Effects of Variability in Synthetic Training Data on Convolutional Neural Networks for 3D Head Reconstruction* **3228**
Jan Philip Gopfert, Christina Gopfert, Mario Botsch and Barbara Hammer

11:45AM *Analyzing quality clarinet sound using deep learning. A preliminary study.* **3235**
Francisco Chavez de la O, Francisco Fernandez de Vega and Francisco Javier Rodriguez Diaz

12:15PM *Fingerprint Classification Using Convolutional Neural Networks and Ridge Orientation Images* **3242**
John Shrein

IEEE Artificial Life V, Chair: Melanie Moses, Room: Honolulu 3 (Tapa Tower)

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Chama Bensmail, Volker Steuber, Neil Davey and Borys Wrobel

11:15AM *Inform: A Toolkit for Information-Theoretic Analysis of Complex Systems* **3258**
Douglas G. Moore, Gabriele Valentini, Sara I. Walker and Michael Levin

11:45AM *Towards a Plant Bio-Machine* **3266**
Stefano Nichele, Sebastian Risi, Gunnar Tufte and Laura Beloff

12:15PM *Computing by Nowhere Increasing Complexity* **3274**
Bar Peled, Vikas Kumar Mishra and Avishy Carmi

Computational Intelligence in Multicriteria Decision-Making III, Chair: Akira Oyama, Room: Coral 5

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- 11:15AM *An Extended Mutation-Based Priority-Rule Integration Concept for Multi-Objective Machine Scheduling* 3288
Jakob Bossek and Christian Grimme
- 11:45AM *A Multiobjective Genetic Algorithm based Hybrid Recommendation Approach* 3296
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- 12:15PM *Simultaneous Structure Design Optimization of Multiple Car Models Using K Computer* 3302
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Symposium on Neuromorphic Cognitive Computing II, Chair: Gang Pan, Room: Iolani 3-4 (Tapa Tower)

- 10:45AM *An Energy-Efficient Accelerator for Hybrid Bit-width DNNs* 3306
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- 11:15AM *Layer-wise synapse optimization for implementing neural networks on general neuromorphic architectures* 3314
John Mern, Jayesh Gupta and Mykel Kochenderfer
- 11:45AM *Energy-efficient Hybrid CMOS-NEMS LIF Neuron Circuits in 28 nm CMOS Process* 3322
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- 12:15PM *ERMPD: An Efficient and Robustness Membrane Potential Driven Supervised Learning in Spiking Neural Networks* 3327
Yongqing Zhang, Yi Chen, Malu Zhang, Xi Wu, Jiliu Zhou and Hong Qu

Computational Intelligence in Big Data I, Chair: Spencer Thomas, Room: Nautilus (Kalia Tower)

- 10:45AM *A Recommendation System by Collaborative Filtering Including Information and Characteristics on Users and Items* 3333
Manami Kawasaki and Takashi Hasuike
- 11:15AM *Kernel-based Generative Learning in Distortion Feature Space* 3341
Bo Tang, Paul M. Baggenstoss and Haibo He
- 11:45AM *Where is Safe: Analyzing the Relationship between the Area and Emotion Using Twitter Data* 3349
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Computational Intelligence for Security and Defense Applications III, Chair: Svetlana Yanushkevich, Room: Lehua (Kalia Tower)

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- 11:15AM *Utilizing Gait Traits to Improve e-Border Watchlist Performance* 3364
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- 11:45AM *Forecasting Time Series from Clustering by a Memetic Differential Fuzzy Approach: An Application to Crime Prediction* 3372
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- 12:15PM *Intelligent Sensor Attack Detection and Identification for Automotive Cyber-Physical Systems* 3380
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Computational Intelligence in Production and Logistics Systems III, Chair: Beatrice Ombuki-Berman and Raymond Chiong, Room: Kahili (Kalia Tower)

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| 11:15AM | <i>A Column Generation-based Heuristic for a Green Vehicle Routing Problem with an Unlimited Heterogeneous Fleet</i> | 3395 |
| | Mario Ziebuhr, Tobias Buer and Herbert Kopfer | |
| 11:45AM | <i>An Age Layered Population Structure Genetic Algorithm for the Multi-Depot Vehicle Problem</i> | 3403 |
| | Audrey Opoku-Amankwaah and Beatrice Ombuki-Berman | |
| 12:15PM | <i>Reactive rescheduling method for electric vehicles charging in dedicated residential zone parking</i> | 3411 |
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Friday, December 1, 10:45AM-11:45A

Plenary Talk: Intelligent Integrated Decision Control Approach for Cooperative Multi-Robotic System, Speaker: Suresh Sundaram, Room: Hibiscus 1 (Kalia Tower)

Friday, December 1, 11:45AM-12:45PM

Symposium on Robotic Intelligence in Informationally Structured Space II, Chair: Hiroyuki Masuta, Room: Hibiscus 1 (Kalia Tower)

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| 12:15PM | <i>Centered Learning Model in Omni-directional Controller of Neural Oscillator Based Biped Locomotion</i> | 3425 |
| | Azhar Auila Saputra and Naoyuki Kubota | |

Friday, December 1, 2:00PM-4:00PM

Computational Intelligence in Dynamic and Uncertain Environments II, Chair: Wenjian Luo, Room: Honolulu 1 (Tapa Tower)

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| 2:00PM | <i>A Hybrid Genetic Algorithm for Vehicle Routing Problems with Dynamic Requests</i> | 3433 |
| | Ruikang Yi, Wenjian Luo, Chenyang Bu and Xin Lin | |
| 2:30PM | <i>Environmental Variations Promotes Adaptation in Artificial Evolution</i> | 3441 |
| | Nicola Milano, Jonata Tyska Carvalho and Stefano Nolfi | |
| 3:00PM | <i>Amygdala and Ventral Striatum Population Codes Implement Multiple Learning Rates for Reinforcement Learning</i> | 3448 |
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Symposium on Deep Learning III, Chair: Davide Bacciu, Room: Honolulu 2 (Tapa Tower)

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| 2:00PM | <i>Weakly supervised learning with convolutional neural networks for power line localization</i> | 3453 |
| | Sang Jun Lee, Jong Pil Yun, Gyogwon Koo, Hyeyeon Choi, Wookyoung Kwon and Sang Woo Kim | |
| 2:30PM | <i>Cross-Subject Classification of Cognitive Loads Using a Recurrent-Residual Deep Network</i> | 3461 |
| | Magdiel Jimenez-Guarneros and Pilar Gomez-Gil | |
| 3:00PM | <i>Soft sensor development and applications based on LSTM in deep neural networks</i> | 3468 |
| | Wensi Ke, Dexian Huang, Yang Fan and Yongheng Jiang | |
| 3:30PM | <i>LSTM Networks for Data-Aware Remaining Time Prediction of Business Process Instances</i> | 3474 |
| | Nicolo' Navarin, Beatrice Vincenzi, Mirko Polato and Alessandro Sperduti | |

IEEE Artificial Life VI, Chair: Lee Altenberg, Room: Honolulu 3 (Tapa Tower)

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- 2:30PM** *Evolving Robust, Deliberate Motion Planning With HyperNEAT* 3488
Ben Jolley and Alastair Channon
- 3:00PM** *Very Small Spiking Neural Networks Evolved to Recognize a Pattern in a Continuous Input Stream* 3496
Muhammad Yaqoob and Borys Wrobel
- 3:30PM** *Fuzzy Decision Making in an Agent-Based Model of Non-Industrial Private Forest Owners* 3504
Robert Zupko

Computational Intelligence in Big Data II, Chair: Spencer Thomas, Room: Coral 5

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- 2:30PM** *Learning Autoencoded Radon Projections* 3520
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- 3:00PM** *Enhancing Classification of Mass Spectrometry Imaging Data with Deep Neural Networks* 3525
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Computational Intelligence for Multimedia, Signal and Vision Processing II, Chair: Khan Iftekharuddin, Room: Iolani 3-4 (Tapa Tower)

- 2:00PM** *Advanced human motion analysis and visualization: comparison of mawashi-geri kick of two elite karate athletes* 3533
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- 2:30PM** *Block-based Feature Extraction Model for Early Fire Detection* 3540
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- 3:00PM** *Software Constraints for Caves' Virtual Environments Modeling* 3548
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Computational Intelligence for Security and Defense Applications IV, Chair: Marco Cococcioni, Room: Lehua (Kalia Tower)

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- 2:30PM** *Data Loss Prevention for Cross-Domain Instant Messaging* 3565
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