IJCNN 2017 Program

Tutorial T7: Tutorial 7: Topological and graph based clustering: Recent algorithmic advances
Sunday, May 14, 8:00AM-10:00AM, Room: Parallel 2 (Room #1+13+14), Instructor: Nistor Grozavu

Tutorial T4: Tutorial 4: Information theoretic learning in pattern classification
Sunday, May 14, 8:00AM-10:00AM, Room: Parallel 3 (Room #2+11+12), Instructor: Bao-Gang Hu

Tutorial T6: Tutorial 6: Deep Learning Using Multi-Layer Perceptron and Improving its Performance
Sunday, May 14, 8:00AM-10:00AM, Room: Parallel 4 (Room #3+10+9), Instructor: B. Chandra

Tutorial T12: Tutorial 12: Monte Carlo Tree Search and other Simulation Optimization Methods
Sunday, May 14, 8:00AM-10:00AM, Room: Parallel 5 (Room #4+7+8), Instructor: Michael C. Fu

Tutorial T13: Tutorial 13: Data insights from machine learning with applications to biomedical data
Sunday, May 14, 8:00AM-10:00AM, Room: Parallel 6 (Room #5+6), Instructor: Paulo Lisboa

Tutorial T1: Tutorial 1: Interactive Machine Learning: From Classifiers to Robotics
Sunday, May 14, 10:20AM-12:20PM, Room: Parallel 2 (Room #1+13+14), Instructor: Brad Hayes

Tutorial T5: Tutorial 5: Change and Anomaly Detection in Data Streams
Sunday, May 14, 10:20AM-12:20PM, Room: Parallel 3 (Room #2+11+12), Instructor: Giacomo Broacchi

Tutorial T10: Tutorial 10: Deep Learning for Face Recognition
Sunday, May 14, 10:20AM-12:20PM, Room: Parallel 4 (Room #3+10+9), Instructor: Richa Singh; Mayank Vatsa

Tutorial T17: Tutorial 17: From Complex Systems Theory to Systems Neuroscience
Sunday, May 14, 10:20AM-12:20PM, Room: Parallel 5 (Room #4+7+8), Instructor: Peter Erdi

Tutorial T16: Tutorial 16: Advanced Neural Network Applications for Smart Grid Operations
Sunday, May 14, 10:20AM-12:20PM, Room: Parallel 6 (Room #5+6), Instructor: G. Kumar Venayagamoorthy

Tutorial T2: Tutorial 2: Physics of the mind
Sunday, May 14, 1:30PM-3:30PM, Room: Parallel 2 (Room #1+13+14), Instructor: Leonid Perlovsky

Tutorial T8: Tutorial 8: Advanced Methodologies for Predictive Learning
Sunday, May 14, 1:30PM-3:30PM, Room: Parallel 3 (Room #2+11+12), Instructor: Vladimir Cherkassky

Tutorial T15: Tutorial 15: Deep multiview representation learning: methods and applications
Sunday, May 14, 1:30PM-3:30PM, Room: Parallel 4 (Room #3+10+9), Instructor: Raman Arora; Kevin Duh

Tutorial T19: Tutorial 19: Towards the Ultimate Brain Computer - Hardware Designs of Artificial and Spiking Neural Networks
Sunday, May 14, 1:30PM-3:30PM, Room: Parallel 5 (Room #4+7+8), Instructor: Jae-sun Seo and Bipin Rajendran

Tutorial T14: Tutorial 14: Time-Evolving Data Streams Learning and Short-Term Urban Traffic Flow Forecasting
Sunday, May 14, 1:30PM-3:30PM, Room: Parallel 6 (Room #5+6), Instructor: Francesco Masulli

Tutorial T3: Tutorial 3: Brain-Inspired Turing Machine Logic in Neural Networks for Vision, Speech, and Natural Languages
Sunday, May 14, 3:50PM-5:50PM, Room: Parallel 2 (Room #1+13+14), Instructor: Juyang Weng

Tutorial T20: Tutorial 20: Cutting edge heuristics in Computational Intelligence with Visual Data Mining
Sunday, May 14, 3:50PM-5:50PM, Room: Parallel 3 (Room #2+11+12), Instructor: Boris Kovalerchuk

Tutorial T9: Tutorial 9: Deep Learning for EEG Signal Processing and Health Informatics
Sunday, May 14, 3:50PM-5:50PM, Room: Parallel 4 (Room #3+10+9), Instructor: Francesco Carlo Morabito

Tutorial T18: Tutorial 18: Event-Related Potentials: Cognition in Brain-Computer Interfaces
Sunday, May 14, 3:50PM-5:50PM, Room: Parallel 5 (Room #4+7+8), Instructor: Joao Luis Garcia Rosa

Tutorial T11: Tutorial 11: Graphical Probabilistic Modeling and Machine Learning for Multimedia Content Analysis
Sunday, May 14, 3:50PM-5:50PM, Room: Parallel 6 (Room #5+6), Instructor: Xiao-Ping (Steven) Zhang and Zhu Liu

Special Track Recep: Welcome Reception
Sunday, May 14, 6:30PM-8:30PM, Room: La Perouse, Chair: Yoonsuck Choe
Session Plen1: Plenary session 1: Jose C. Principe
Monday, May 15, 8:00AM-9:00AM, Room: La Perouse, Chair: Cesare Alippi

8:00AM A Cognitive Architecture for Object Recognition in Video

Jose C. Principe

Special Session S19: Large datasets and big data analytics: Theory, methods, and applications
Monday, May 15, 9:20AM-10:40AM, Room: Parallel 1 (Cook), Chair: Luca Oneto

9:20AM Simple and Efficient Parallelization for Probabilistic Temporal Tensor Factorization [#267]

Guangxi Li, Zenglin Xu, Linnan Wang, Jinmian Ye, Irwin King and Michael Lyu

9:40AM Exploiting Sparsity to Improve the Accuracy of Nyström-based Large-scale Spectral Clustering [#770]

Mahesh Mohan and Claire Monteleoni

10:00AM Brazil's Bolsa Familia and Young Adult Workers: A Parallel RDD Approach to Large Datasets [#308]

Aloisio Dourado, Rommel Carvalho, Donald Pianto and Gustavo van Erven

10:20AM Advanced Pseudo-Inverse Linear Discriminants for Highly Imbalanced Big Datasets [#736]

Lili Guo, Zhichao Jin and Daqi Gao

Special Session S07: Cognition and development
Monday, May 15, 9:20AM-10:40AM, Room: Parallel 2 (Room #1+13+14), Chair: Pablo Barros

9:20AM A Self-Organizing Model for Affective Memory [#334]

Pablo Barros and Stefan Wermter

9:40AM Hyperarticulation Aids Learning of New Vowels in a Developmental Speech Acquisition Model [#623]

Anja Philippsen, Felix Reinhart, Britta Wrede and Petra Wagner

10:00AM Neurorobotic Simulations on the Degradation of Multiple Column Liquid State Machines [#76]

Ricardo de Azambuja, Daniel Garcia, Martin Stoelen and Angelo Cangelosi

10:20AM The art of scaling up : a computational account on action selection in basal ganglia [#481]

Bhargav Teja Nallapu, Bapi Raju Surampudi and Nicolas P. Rougier

Session eeg: EEG Analysis
Monday, May 15, 9:20AM-10:40AM, Room: Parallel 3 (Room #2+11+12), Chair: Chaomin Luo

9:20AM EEG Classification Based On Sparse Representation [#326]

Hongwei Mo, Chaomin Luo and Gene Eu Jan

9:40AM Stochastic and Deterministic Stationarity Analysis of EEG Data [#359]

Daniel Moreira Cestari and Joao Luis Garcia Rosa

10:00AM Enhanced Detection of Movement Onset in EEG through Deep Oversampling [#606]

Noura Al Moubayed, Bashar Awwad Shiekh Hasan and Andrew Stephen McGough

10:20AM Investigating the possibility of applying EEG lossy compression to EEG-based user authentication [#795]

Binh Nguyen, Dang Nguyen, Wanli Ma and Dat Tran

Session rand: Randomized and noise-based learning
Monday, May 15, 9:20AM-10:40AM, Room: Parallel 4 (Room #3+10+9), Chair: Bart Kosko

9:20AM Single-Cell Based Random Neural Network for Deep Learning [#72]

Yonghua Yin and Erol Gelenbe

9:40AM Efficient k-means++ with Random Projection [#176]

Jan Y. K. Chan and Alex Po Leung

10:00AM A Two-Phase Representation Based Face Recognition Method With 'Random-Filtering' Virtual Samples [#383]

Deyan Tang, Siwang Zhou, Wenjuan Yang and Yonghe Liu

10:20AM Using Noise to Speed Up Video Classification with Recurrent Backpropagation [#931]

Bart Kosko and Olaoluwa Adigun

Session deep1: Deep learning 1: theory
Monday, May 15, 9:20AM-10:40AM, Room: Parallel 5 (Room #4+7+8), Chair: Nicolo Navarin

9:20AM DeepRecon: Dynamically Reconfigurable Architecture for Accelerating Deep Neural Networks [#892]

Tayyar Rzayev, Saber Moradi, David Albonesi and Rajit Manohar

9:40AM A Robust Adaptive Stochastic Gradient Method for Deep Learning [#670]

Caglar Gulcehre, Jose Sotelo, Marcin Moczulski and Yoshua Bengio

10:00AM Data-centric Computation Mode for Convolution in Deep Neural Networks [#792]

Peiqi Wang, Zhenyu Liu, Haixia Wang and Dongsheng Wang

10:20AM Deep Graph Node Kernels: a Convex Approach [#759]

Luca Oneto, Nicolo Navarin, Alessandro Sperduti and Davide Anguita

Session theory1: Theory 1
Monday, May 15, 9:20AM-10:40AM, Room: Parallel 6 (Room #5+6), Chair: Shalabh Bhatnagar

9:20AM Selective and Cooperative Potentiality Maximization for Improving Interpretation and Generalization [#65]

Ryotaro Kamimura

9:40AM Neural Networks Between Integer and Rational Weights [#77]

Jiri Sima

10:00AM Weibull Partition Models with Applications to Hidden Semi-Markov Models [#83]

Youwei Lu, Shogo Okada and Katsumi Nitta

10:20AM A Model based Search Method for Prediction in Model-free Markov Decision Process [#174]

Ajin George Joseph and Shalabh Bhatnagar

Special Session S01a: Advanced data analytics for large-scale complex data environment 2
Monday, May 15, 11:00AM-12:20PM, Room: Parallel 1 (Cook), Chair: Liu Xiaobo

11:00AM Deeply-Supervised CNN for Prostate Segmentation [#243]

Zhu Qikui, Du Bo, Turkbey Baris, Choyke Peter L . and Yan Pingkun

11:20AM A Weighted-resampling based Transfer Learning Algorithm [#137]

Xiaobo Liu, Zhentao Liu, Guangjun Wang, Zhihua Cai and Harry Zhang

11:40AM Fitness with Diversity Information for Selection of Evolutionary Algorithms [#134]

Yang Li, Chengjun Li, Gang Liu and Wei Long

12:00PM A Kernel-based adaptive Fuzzy C-Means algorithm for M-FISH image segmentation [#335]

Alan William Dougherty and Jane You

Special Session S25: Mind, Brain, and Cognitive Algorithms
Monday, May 15, 11:00AM-12:20PM, Room: Parallel 2 (Room #1+13+14), Chair: Leonid Perlovsky

11:00AM Neural Network Modeling of Business Decision Making [#197]

Daniel Levine, Kay-Yut Chen and Bakur AlQaudi

11:20AM Microcalcification Detection Using Self Organizing Neuro Glia Network Classifier [#761]

Shems Bertegi and Kirmene Marzouki

11:40AM Physics of the Mind [#938]

Leonid Perlovsky

12:00PM Resting State Neural Networks and Energy Metabolism [#769]

Raymond Noack, Manjesh Chetan, Ruszinko Miklos, Siegelmann Hava and Kozma Robert

Session gene: Genetic and molecular applications
Monday, May 15, 11:00AM-12:20PM, Room: Parallel 3 (Room #2+11+12), Chair: Marley Vellasco

11:00AM Accurate Classification of Immunomodulatory RNA Sequences [#526]

Hugo A. Guillen-Ramirez, Jose Colbes, Carlos A. Brizuela and Israel M. Martinez-Perez

11:20AM Structural Damage Assessment Using Artificial Immune Systems and Wavelet Decomposition [#878]

Arthur Shi and Xiao-Hua Yu

11:40AM SPYSMDA: SPY Strategy-based MiRNA-Disease Association prediction [#607]

Zhichao Jiang, Xinmei Wang and Deshuang Huang

12:00PM Feature importance calculation and protein quality assessment on the decoy discrimination problem [#914]

Edwin Tavara, Marley Vellasco, Bruno Horta and Fabio Custodio

Session prob: Probabilistic methods
Monday, May 15, 11:00AM-12:20PM, Room: Parallel 4 (Room #3+10+9), Chair: Robert Sabourin

11:00AM Adaptive Blocked Gibbs Sampling for Inference in Probabilistic Graphical Models [#376]

Mohammad Maminur Islam, Khan Mohammad Al Farabi and Venugopal Deepak

11:20AM Probabilistic Matrix Factorization from Quantized Measurements [#379]

Giulio Bottegal and Johan A.K. Suykens

11:40AM Probabilistic Matching: Causal Inference under Measurement Errors [#493]

Fani Tsapeli, Peter Tino and Mirco Musolesi

12:00PM Bayesian Optimization for Conditional Hyperparameter Spaces [#510]

Julien-Charles Levesque, Audrey Durand, Christian Gagne and Robert Sabourin

Session deep2: Deep learning 2: theory
Monday, May 15, 11:00AM-12:20PM, Room: Parallel 5 (Room #4+7+8), Chair: Jinglu Hu

11:00AM Unsupervised Deep Kernel for High Dimensional Data [#815]

Ying Xie, Linh Le and Jie Hao

11:20AM Margin Maximization for Robust Classification using Deep Learning [#898]

Alexander Matyasko and Chau Lap-Pui

11:40AM Variational methods for Conditional Multimodal Deep Learning [#125]

Gaurav Pandey and Ambedkar Dukkipati

12:00PM A Multilayer Gated Bilinear Classifier: from Optimizing a Deep Rectified Network to a Support Vector Machine [#178]

Weite Li and Jinglu Hu

Session theory 2: Theory 2
Monday, May 15, 11:00AM-12:20PM, Room: Parallel 6 (Room #5+6), Chair: George Cavalcanti

11:00AM Cooperative Learning: Decentralized Data Neural Network [#856]

Noah Lewis, Sergey Plis and Vince Calhoun

11:20AM On the Characterization of the Oracle for Dynamic Classifier Selection [#80]

Mariana A. Souza, George D. C. Cavalcanti, Rafael M. O. Cruz and Robert Sabourin

11:40AM Data Analysis in Weitzenbock Space [#240]

Stephen Marsland and Carole Twining

12:00PM Simple, Fast and Accurate Hyper-parameter Tuning in Gaussian-kernel SVM [#266]

Guangliang Chen, Wilson Florero-Salinas and Dan Li

Session Plen2: Plenary session 2: Hava Siegelmann
Monday, May 15, 1:30PM-2:30PM, Room: La Perouse, Chair: Chrisina Jayne

1:30PM How brain architecture leads to abstract thought

Hava Siegelmann

Panel Session Panel1: Cutting edge neural network research
Monday, May 15, 2:50PM-4:30PM, Room: La Perouse, Chair: Asim Roy

2:50PM Panelists

Christof Koch, Alex Graves, Jose Principe, Peter Erdi, Hava Siegelmann and Leonid Perlovsky

Special Session S01b: Advanced data analytics for large-scale complex data environment 1
Monday, May 15, 2:50PM-4:30PM, Room: Parallel 1 (Cook), Chair: Jia Wu

2:50PM An output-based knowledge transfer approach and its application in bladder cancer prediction [#167]

Guanjin Wang, Guangquan Zhang, Kup-Sze Choi, Kin-Man Lam and Jie Lu

3:10PM Relational Autoencoder for Feature Extraction [#292]

Qinxue Meng, Daniel Catchpoole, David Skillicorn and Paul Kennedy

3:30PM Metric learning for multi-instance classification with collapsed bags [#146]

Li Dewei, Xu Dongkuan, Tang Jingjing and Tian Yingjie

3:50PM First-order Causal Process for Causal Modelling with Instantaneous and Cross-temporal Relations [#524]

Fujin Zhu, Guangquan Zhang, Jie Lu and Donghua Zhu

4:10PM Universal Network Representation for Heterogeneous Information Networks [#236]

Ruiqi Hu, Celina Ping Yu, Sai-Fu Fung, Shirui Pan, Haishuai Wang and Guodong Long

Special Session S23: Machine learning methods applied to vision and robotics (MLMVR) 1
Monday, May 15, 2:50PM-4:30PM, Room: Parallel 2 (Room #1+13+14), Chair: Jose Garcia-Rodriguez

2:50PM Panoramic Background Modeling for PTZ Cameras with Competitive Learning Neural Networks [#564]

Karl Thurnhofer-Hemsi, Ezequiel Lopez-Rubio, Enrique Dominguez, Rafael Marcos Luque-Baena and Miguel A. Molina-Cabello

3:10PM Neural Controller for PTZ cameras based on nonpanoramic foreground detection [#648]

Miguel A. Molina-Cabello, Ezequiel Lopez-Rubio, Rafael Marcos Luque-Baena, Enrique Dominguez and Karl Thurnhofer-Hemsi

3:30PM LonchaNet: A Sliced-based CNN Architecture for Real-time 3D Object Recognition [#421]

Francisco Gomez-Donoso, Alberto Garcia-Garcia, Jose Garcia-Rodriguez, Sergio Orts-Escolano and Miguel Cazorla

3:50PM Guide-wire Detection Using Region Proposal Network for X-ray Image-guided Navigation [#237]

Li Wang, XiaoLiang Xie, GuiBin Bian, ZengGuang Hou, XiaoRan Cheng and Pusit Prasong

4:10PM A Recurrent Neural Network based Schaeffer Gesture Recognition System [#586]

Sergiu-Ovidiu Oprea, Alberto Garcia-Garcia, Jose Garcia-Rodriguez, Sergio Orts-Escolano and Miguel Cazorla

Session interf: Behavior and user interfaces
Monday, May 15, 2:50PM-4:30PM, Room: Parallel 3 (Room #2+11+12), Chair: Nojun Kwak

2:50PM Matching Video Net: Memory-based embedding for video action recognition [#173]

Daesik Kim, Myunggi Lee and Nojun Kwak

3:10PM Haptic Material Classification with a Multi-Channel Neural Network [#356]

Matthias Kerzel, Moaaz Ali, Hwei Geok Ng and Stefan Wermter

3:30PM OMKT: Projection Based Bounded On-line Multiple Kernel Tracker [#823]

K.V.D.J.Prabhash Kumarasinghe and Suresh Sundaram

3:50PM Variation in Classification Accuracy with Number of Glimpses [#847]

Jayanta Dutta and Bonny Banerjee

4:10PM Fast On-Line Kernel Density Estimation for Active Object Localization [#368]

Anthony Rhodes, Max Quinn and Melanie Mitchell

Session fac: Matrix factorization and feature discovery
Monday, May 15, 2:50PM-4:30PM, Room: Parallel 4 (Room #3+10+9), Chair: Xiaokai Wei

2:50PM Factorization for Projective and Metric Reconstruction via Truncated Nuclear Norm [#407]

Yang Lin, Li Yang, Zhouchen Lin, Tong Lin and Hongbin Zha

3:10PM Robust Nonnegative Matrix Factorization with Ordered Structure Constraints [#128]

Jing Wang, Feng Tian, Chang Hong Liu, Hongchuan Yu, Xiao Wang and Xianchao Tang

3:30PM Nonnegative Matrix Factorization with Adaptive Neighbors [#192]

Shudong Huang, Zenglin Xu and Fei Wang

3:50PM Multi-view Unsupervised Feature Selection by Cross-diffused Matrix Alignment [#854]

Xiaokai Wei, Bokai Cao and Philip S. Yu

4:10PM Distance Metric Learning with Eigenvalue Fine Tuning [#61]

Wang Wenqun, Zhang Ya and Hu Jinglu

Session deep3 : Deep learning 3: theory
Monday, May 15, 2:50PM-4:30PM, Room: Parallel 5 (Room #4+7+8), Chair: William Severa

2:50PM Deep Reward Shaping from Demonstrations [#403]

Ahmed Hussein, Eyad Elyan, Mohamed Medhat Gaber and Chrisina Jayne

3:10PM Mitigating Fooling with Competitive Overcomplete Output Layer Neural Networks [#343]

Navid Kardan and Kenneth Stanley

3:30PM Neurogenesis Deep Learning [#655]

Timothy Draelos, Nadine Miner, Christopher Lamb, Craig Vineyard, Kristofor Carlson, Conrad James, James Aimone, William Severa and Jonathan Cox

3:50PM Fast Feedforward Non-parametric Deep Learning Network with Automatic Feature Extraction [#449]

Plamen Angelov, Xiaowei Gu and Jose Principe

4:10PM The Effects of Output Codes on Transfer Learning in a Deep Convolutional Neural Net [#531]

Steven Gutstein and Ethan Stump

Session theory3: Theory 3
Monday, May 15, 2:50PM-4:30PM, Room: Parallel 6 (Room #5+6), Chair: Ricardo Cerri

2:50PM A Sequential Simplex Algorithm for Automatic Data and Center Selecting Radial Basis Functions [#694]

Xiaofeng Ma, Tomojit Ghosh and Michael Kirby

3:10PM Dictionary Learning with Equiprobable Matching Pursuit [#339]

Fredrik Sandin and Sergio Martin-del-Campo

3:30PM A TCART-M - Tuned CARTesian-based Error Function for Multilabel Classification with the MLP [#283]

Jacek Mandziuk, Adam Zychowski and Lipo Wang

3:50PM A Two-Step Cascade Classification Method [#501]

Eunelson Silva, Alceu S. Britto, Luiz S. Oliveira, Fabricio Enembreck, Robert Sabourin and Alessandro Koerich

4:10PM Incorporating Instance Correlations in Multi-label Classification via Label-Space [#505]

Iuri Bonna Mauricio Abreu, Rafael Gomes Mantovani and Ricardo Cerri

Session recom: Recommender systems and graph analysis
Monday, May 15, 4:40PM-6:20PM, Room: Parallel 1 (Cook), Chair: Liqiang Wang

4:40PM Social Recommendation Using Euclidean Embedding [#467]

Wentao Li, Min Gao, Wenge Rong, Junhao Wen, Qingyu Xiong, Ruixi Jia and Tong Dou

5:00PM Music Recommendation via Heterogeneous Information Graph Embedding [#470]

Dongjing Wang, Guandong Xu and Shuiguang Deng

5:20PM Leveraging Deep Visual Features for Content-based Movie Recommender Systems [#583]

Ralph Rassweiler, Jonatas Wehrmann and Rodrigo Barros

5:40PM Graph-Boosted Convolutional Neural Networks for Semantic Segmentation [#60]

Guangzhen Liu, Peng Han, Yulei Niu, Wenwu Yuan, Zhiwu Lu and Ji-Rong Wen

6:00PM Link Prediction by Exploiting Network Formation Games in Exchangeable Graphs [#212]

Liqiang Wang, Yafang Wang, Bin Liu, Lirong He, Shijun Liu, Gerard de Melo and Zenglin Xu

Special Session S06: Biologically inspired neural networks and learning systems for robotics
Monday, May 15, 4:40PM-6:20PM, Room: Parallel 2 (Room #1+13+14), Chair: Chaomin Luo

4:40PM Teaching Emotion Expressions to a Human Companion Robot using Deep Neural Architectures [#616]

Nikhil Churamani, Matthias Kerzel, Erik Strahl, Pablo Barros and Stefan Wermter

5:00PM A Self-Driving Robot Using Deep Convolutional Neural Networks on Neuromorphic Hardware [#363]

Tiffany Hwu, Jacob Isbell, Nicolas Oros and Jeffrey Krichmar

5:20PM Emergence of Tool Construction in an Articulated Limb Controlled by Evolved Neural Circuits [#918]

Randall Reams and Yoonsuck Choe

5:40PM Neural Based Obstacle Avoidance with CPG Controlled Hexapod Walking Robot [#722]

Petr Cizek, Pavel Milicka and Jan Faigl

6:00PM Predictive Coding for Dynamic Vision: Development of Functional Hierarchy in a Multiple Spatio-Temporal Scales RNN Model [#119]

Minkyu Choi and Jun Tani

Session sensory: Sensory processing: Vision, audition, and olfaction
Monday, May 15, 4:40PM-6:20PM, Room: Parallel 3 (Room #2+11+12), Chair: A. Ravishankar Rao

4:40PM Visual Entity Linking [#788]

Neha Tilak, Sunil Gandhi and Tim Oates

5:00PM Simulations Support the Simple Hypothesis that Persistent Coupling of Electrochemical Activity in Recurrent Network Neurons Is an Objective Signature of Visual Object Unity [#78]

Raymond Pavloski and Charles Lamb

5:20PM Audio Visual Speech Recognition With Multimodal Recurrent Neural Networks [#259]

Weijiang Feng, Naiyang Guan, Yuan Li, Xiang Zhang and Zhigang Luo

5:40PM Perception Space Analysis: From Color Vision to Odor Perception [#585]

Amir Madany Mamlouk, Martin Haker and Thomas Martinetz

6:00PM The modulation of synchronization by tuning functions and its effect on multi-sensory perception [#382]

A. Ravishankar Rao

Session syst: Software and systems
Monday, May 15, 4:40PM-6:20PM, Room: Parallel 4 (Room #3+10+9), Chair: Christina Kluever

4:40PM Using Regularized Fisher Discriminant Analysis To Improve The Performance Of Gaussian Supervector In Session And Device Identification [#313]

Yuechi Jiang and Frank H. F. Leung

5:00PM Machine Learning Approaches to Predict Learning Outcomes in Massive Open Online Courses [#332]

Raghad Al-Shabandar, Abir Hussain, Andy Laws, Robert Keight, Janet Lunn and Naeem Rad

5:20PM Analyzing and Predicting Concurrency Bugs in Open Source Systems [#361]

Paolo Ciancarini, Francesco Poggi, Davide Rossi and Alberto Sillitti

5:40PM A Self-Enforcing Neural Network as Decision Support System for Air Traffic Control based on probabilistic Weather Forecasts [#392]

Christina Kluever, Juergen Kluever and Dirk Zinkhan

6:00PM Structure Embedding for Knowledge Base Completion and Analytics [#560]

Zili Zhou, Guandong Xu, Wenhao Zhu, Jinyan Li and Wu Zhang

Session deep4: Deep learning 4: Applications
Monday, May 15, 4:40PM-6:20PM, Room: Parallel 5 (Room #4+7+8), Chair: David Fagan

4:40PM Deep Learning based Frameworks for Image Super-Resolution and Noise-Resilient Super-Resolution [#307]

Manoj Sharma, Santanu Chaudhury and Brejesh Lall

5:00PM CAS-CNN: A Deep Convolutional Neural Network for Image Compression Artifact Suppression [#391]

Lukas Cavigelli, Pascal Hager and Luca Benini

5:20PM Learning of Binocular Fixations using Anomaly Detection with Deep Reinforcement Learning [#639]

Francois de La Bourdonnaye, Celine Teuliere, Jochen Triesch and Thierry Chateau

5:40PM Representations in Deep Neural Networks for Image Processing [#657]

Roman Ilin, Thomas Watson and Robert Kozma

6:00PM Deep Learning through Evolution: A Hybrid Approach to Scheduling in a Dynamic Environment [#302]

David Fagan, Michael Fenton, David Lynch, Stepan Kucera, Holger Claussen and Michael O'Neill

Session theory4: Theory 4
Monday, May 15, 4:40PM-6:20PM, Room: Parallel 6 (Room #5+6), Chair: Calin-Adrian Popa

4:40PM Octonion-Valued Bidirectional Associative Memories [#43]

Calin-Adrian Popa

5:00PM Hyperellipsoidal Neuron [#58]

Carlos Villasenor, Nancy Arana-Daniel, Alma Y. Alanis and Carlos Lopez-Franco

5:20PM Dendrite Ellipsoidal Neuron [#453]

Fernando Arce, Erik Zamora and Humberto Sossa

5:40PM Neuro-inspired Quantum Associative Memory Using Adiabatic Hamiltonian Evolution [#814]

Yoshihiro Osakabe, Shigeo Sato, Hisanao Akima, Mitsunaga Kinjo and Masao Sakuraba

6:00PM Matrix Variate RBM Model with Gaussian Distributions [#320]

Simeng Liu, Yanfeng Sun, Yongli Hu, Junbin Gao, Fujiao Ju and Baocai Yin

Plenary Poster Session P1: Poster session #1 (random order, for now)
Monday, May 15, 7:30PM-9:00PM, Room: Arteaga, Chair: Richard Duro

P101 Complex-Valued Convolutional Neural Networks for Real-Valued Image Classification [#38]

Calin-Adrian Popa

P102 Evolutionary Optimization of On-line Multilayer Perceptron for Similarity-Based Access Control [#86]

Andrii Shalaginov

P103 Modeling Direction Selective Visual Neural Network with ON and OFF Pathways for Extracting Motion Cues from Cluttered Background [#228]

Qinbing Fu and Shigang Yue

P104 A dynamic neural controller for adaptive optimal control of permanent magnet DC motors [#437]

Yinyan Zhang, Shuai Li, Xin Luo and Ming-sheng Shang

P105 LSTM with Working Memory [#222]

Andrew Pulver and Siwei Lyu

P106 Critical echo state network dynamics by means of Fisher information maximization [#936]

Filippo Maria Bianchi, Lorenzo Livi, Robert Jenssen and Cesare Alippi

P107 Learning to Reproduce Stochastic Time Series Using Stochastic LSTM [#416]

Sadaf Gulshad, Dick Sigmund and Jong-Hwan Kim

P108 Parameter Compression of Recurrent Neural Networks and Degradation of Short-term Memory [#663]

Jonathan Cox

P109 Improving Learning Efficiency of Recurrent Neural Network through Adjusting Weights of All Layers in a Biologically-inspired Framework [#783]

Huang Xiao, Wu Wei, Yin Peijie and Qiao Hong

P110 Neural Control for a Microgrid [#548]

Martin de Jesus Loza-Lopez, Tania Beatriz Lopez-Garcia, Riemann Ruiz-Cruz and Edgar N. Sanchez

P111 Empirical Analysis of the Necessary and Sufficient Conditions of the Echo State Property [#844]

Sebastian Basterrech

P112 Fast Deep Neural Network based on intelligent dropout and layer skipping [#728]

Asma Eladel, Ridha Ejbali, Chokri Ben Amar and Mourad Zaied

P113 A Study on Visual Interpretation of Network In Network [#810]

Suzuki Satoshi and Shouno Hayaru

P114 Asymmetric Stacked Autoencoder [#387]

Aditay Tripathi and Angshul Majumdar

P115 Connecting Deep Neural Networks with Symbolic Knowledge [#370]

Arjun Kumar and Tim Oates

P116 Deep Learning based Image Description Generation [#225]

Philip Kinghorn, Li Zhang and Ling Shao

P117 Deep Neural Network Bottleneck Features for Bird Species Verification [#96]

Jinming Zhao, Yanyan Xu, Dengfeng Ke and Kaile Su

P118 Sequence-to-sequence Prediction of Personal Computer Software by Recurrent Neural Network [#344]

Qichuan Yang, Zhiqiang He, Fujiang Ge and Yang Zhang

P119 Image Aesthetics Assessment using Deep Chatterjee's Machine [#433]

Zhangyang Wang, Ding Liu, Shiyu Chang, Florin Dolcos, Diane Beck and Thomas Huang

P120 Fusing Attention with Visual Question Answering [#677]

Ryan Burt, Mihael Cudic and Jose Principe

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P223 Towards Real-Time Robot Simulation on Uneven Terrain Using Neural Networks [#827]

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P225 Extremely Parallel Memristor Crossbar Architecture for Convolutional Neural Network Implementation [#819]

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P226 Methods for High Resolution Programming in Lithuim Niobate Memristors for Neuromorphic Hardware [#923]

Chris Yakopcic, Shu Wang, Weisong Wang, Eunsung Shin, Guru Subramanyam and Tarek Taha

P227 Non-negative Pyramidal Neural Network for Parts-based Learning [#627]

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P228 Performance Optimization of Echo State Networks Through Principal Neuron Reinforcement [#826]

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P229 Dynamic Island Model based on Spectral Clustering in Genetic Algorithm [#155]

Qinxue Meng, Jia Wu, John Ellis and Paul Kennedy

Session Plen3: Plenary session 3: Alex Graves
Tuesday, May 16, 8:00AM-9:00AM, Room: La Perouse, Chair: Barbara Hammer

8:00AM Frontiers in recurrent neural network research

Alex Graves

Special Session S09a: Concept drift, domain adaptation, and learning in dynamic environments 1
Tuesday, May 16, 9:20AM-10:40AM, Room: Parallel 1 (Cook), Chair: Giacomo Boracchi

9:20AM Uniform Histograms for Change Detection in Multivariate Data [#744]

Giacomo Boracchi, Cristiano Cervellera and Danilo Maccio

9:40AM LEVEL_IW: Learning Extreme Verification Latency with Importance Weighting [#850]

Mohammad Umer, Christopher Frederickson and Robi Polikar

10:00AM Label-Noise-Tolerant Classification for Streaming Data [#55]

Benoit Frenay and Barbara Hammer

10:20AM Transfer Learning in Classification based on Manifold Models and its Relation to Tangent Metric Learning [#489]

Sascha Saralajew and Thomas Villmann

Special Session S11: Data mining and knowledge discovery in cyberphysical systems
Tuesday, May 16, 9:20AM-10:40AM, Room: Parallel 2 (Room #1+13+14), Chair: Tang Bo

9:20AM NotiFi: A Ubiquitous WiFi-based Abnormal Activity Detection System [#400]

Dali Zhu, Na Pang, Gang Li and Shaowu Liu

9:40AM Policy Gradient Methods with Gaussian Process Modelling Acceleration [#120]

Dong Li, Dongbin Zhao, Qichao Zhang and Chaomin Luo

10:00AM Detecting changes at the sensor level in Cyber-Physical Systems: Methodology and Technological Implementation [#423]

Cesare Alippi, Viviana D'Alto, Mirko Falchetto, Danilo Pau and Manuel Roveri

10:20AM A Hybrid Machine Learning Approach to Automatic Plant Phenotyping for Smart Agriculture [#922]

So Yahata, Tetsu Onishi, Kanta Yamaguchi, Seiichi Ozawa, Jun Kitazono, Takenao Ohkawa, Takeshi Yoshida, Murakami Noriyuki and Hiroyuki Tsuji

Special Session S15a: Extreme learning machines
Tuesday, May 16, 9:20AM-10:40AM, Room: Parallel 3 (Room #2+11+12), Chair: Guang-Bin Huang

9:20AM A Theoretical Study of The Relationship Between An ELM Network and Its Subnetworks [#25]

Enmei Tu, Guanghao Zhang, Lily Rachmawati, Eshan Rajabally, Shangbo Mao and Guang-Bin Huang

9:40AM Regularized Training of the Extreme Learning Machine using the Conjugate Gradient Method [#773]

Philip de Chazal and Mark McDonnell

10:00AM Reconstruction of Bifurcation Diagrams Using an Extreme Learning Machine with a Pruning Algorithm [#166]

Yoshitaka Itoh and Masaharu Adachi

10:20AM A Low-Dimensional Vector Representation for Words using an Extreme Learning Machine [#731]

Paula Lauren, Guangzhi Qu, Guang-Bin Huang, Paul Watta and Amaury Lendasse

Session spike1: Spiking neurons: adaptation 1
Tuesday, May 16, 9:20AM-10:40AM, Room: Parallel 4 (Room #3+10+9), Chair: Timoleon Moraitis

9:20AM Fatiguing STDP: Learning from Spike-Timing Codes in the Presence of Rate Codes [#879]

Timoleon Moraitis, Abu Sebastian, Irem Boybat, Manuel Le Gallo, Tomas Tuma and Evangelos Eleftheriou

9:40AM Spike Timing-Dependent Conduction Delay Learning Model Classifying Spatio-Temporal Spike Patterns [#164]

Takashi Matsubara

10:00AM Unsupervised Learning of Event-Based Image Recordings using Spike-Timing-Dependent Plasticity [#290]

Laxmi Iyer and Arindam Basu

10:20AM Spike Timing Dependent Plasticity Based Enhanced Self-Learning for Efficient Pattern Recognition in Spiking Neural Networks [#719]

Gopalakrishnan Srinivasan, Sourjya Roy, Vijay Raghunathan and Kaushik Roy

Session deep5: Deep learning 5: Applications
Tuesday, May 16, 9:20AM-10:40AM, Room: Parallel 5 (Room #4+7+8), Chair: Jian Zhang

9:20AM Deep Learning Approach to Link Weight Prediction [#92]

Yuchen Hou and Lawrence Holder

9:40AM Deep Boltzmann Machines for Robust Fingerprint Spoofing Attack Detection [#223]

Gustavo Souza, Daniel Santos, Rafael Pires, Aparecido Marana and Joao Papa

10:00AM Classification of Android Apps and Malware Using Deep Neural Networks [#547]

Robin Nix and Jian Zhang

10:20AM Context Preference-based Deep Adaptive Resonance Theory: Integrating User Preferences into Episodic Memory Encoding and Retrieval [#305]

Dick Sigmund, Gyeong-Moon Park and Jong-Hwan Kim

Session theory5: Theory 5
Tuesday, May 16, 9:20AM-10:40AM, Room: Parallel 6 (Room #5+6), Chair: Michael Potter

9:20AM Neural Networks and the Search for a Quadratic Residue Detector [#447]

Michael Potter, Leon Reznik and Stanislaw Radziszowski

9:40AM Stochastic Diagonal Approximate Greatest Descent in Neural Networks [#568]

Hong Hui Tan, King Hann Lim and Hendra Gunawan Harno

10:00AM Nesterov's Accelerated Gradient and Momentum as approximations to Regularised Update Descent [#673]

Botev Aleksandar, Lever Guy and Barber David

10:20AM Structural adaptation for sparsely connected MLP using Newton's method [#830]

Parastoo Kheirkhah, Kanishka Tyagi, Son Nguyen and Michael T. Manry

Special Session S09b: Concept drift, domain adaptation, and learning in dynamic environments 2
Tuesday, May 16, 11:00AM-12:20PM, Room: Parallel 1 (Cook), Chair: Robi Polikar

11:00AM Incremental Learning with the Minimum Description Length Principle [#891]

Pierre-Alexandre Murena, Antoine Cornuejols and Jean-Louis Dessalles

11:20AM BLPA: Bayesian Learn-Predict-Adjust Method for Online Detection of Recurrent Changepoints [#774]

Alexandr Maslov, Mykola Pechenizkiy, Yulong Pei, Indre Zliobaite, Alexander Shklyaev, Tommi Karkkainen and Jaakko Hollmen

11:40AM An Incremental Ensemble Classifier Learning by Means of a Rule-Based Accuracy and Diversity Comparison [#460]

Md Asafuddoula, Brijesh Verma and Mengjie Zhang

12:00PM Pattern Classification with Meta-Cognition and Online Sequential Learning Algorithm [#469]

Skanda S. Bharadwaj, R. Chandan Kumar, B. N. Sumukha and Koshy George

Special Session S30: Optimizing neural networks via evolutionary computation and swarm intelligence
Tuesday, May 16, 11:00AM-12:20PM, Room: Parallel 2 (Room #1+13+14), Chair: Wei-Chang Yeh

11:00AM Investigation of Long Short-Term Memory Networks to Temperature Prediction for Permanent Magnet Synchronous Motors [#28]

Oliver Wallscheid, Wilhelm Kirchgaessner and Joachim Boecker

11:20AM Improved Performance of Face Recognition using CNN with Constrained Triplet Loss Layer [#408]

Henry Wing Fung Yeung, Jiaxi Li and Yuk Ying Chung

11:40AM A Novel Stacked Denoising Autoencoder with Swarm Intelligence Optimization for Stock Index Prediction [#757]

Jiaxi Li, Guang Liu, Henry Wing Fung Yeung, Yuk Ying Chung, Junfu Yin and Xiaoming Chen

12:00PM An evolutionary method for creating ensembles with adaptive size neural networks for predicting hourly solar irradiance [#260]

Raka Jovanovic, Luis Pomares, Yasir Mohieldeen, Daniel Perez-Astudillo and Dunia Bachour

Special Session S15b: Extreme learning machines
Tuesday, May 16, 11:00AM-12:20PM, Room: Parallel 3 (Room #2+11+12), Chair: Erik Cambria

11:00AM Semi-supervised Convolutional Extreme Learning Machine [#776]

Mahmood Yousefi-Azar and Mark D. McDonnell

11:20AM Objective Cost-Sensitive-Boosting-WELM for Handling Multi Class Imbalance Problem [#582]

Liu Zhen, Tang Deyu, Li Jincheng and Wang Ruoyu

11:40AM Online Recurrent Extreme Learning Machine and its Application to Time-series Prediction [#880]

Jin-Man Park and Jong-Hwan Kim

12:00PM Extreme Learning Machines to Approximate Low Dimensional Spaces for Helicopter Load Signal and Fatigue Life Estimation [#508]

Julio J. Valdes, Catherine Cheung and Alejandro Lehman-Rubio

Session spike2: Spiking neurons: adaptaion 2
Tuesday, May 16, 11:00AM-12:20PM, Room: Parallel 4 (Room #3+10+9), Chair: Meghan Galiardi

11:00AM Stable Spike-Timing Dependent Plasticity Rule for Multilayer Unsupervised and Supervised Learning [#754]

Amar Shrestha, Khadeer Ahmed, Yanzhi Wang and Qinru Qiu

11:20AM Calcium-Modulated Supervised Spike-Timing-Dependent Plasticity for Readout Training and Sparsification of the Liquid State Machine [#901]

Yingyezhe Jin and Peng Li

11:40AM Optimization-based Computation with Spiking Neurons [#194]

Stephen Verzi, Craig Vineyard, Eric Vugrin, Meghan Galiardi, Conrad James and James Aimone

12:00PM Multi-Layer Unsupervised Learning in a Spiking Convolutional Neural Network [#245]

Amirhossein Tavanaei and Anthony Maida

Session deep6: Deep learning 6: Applications
Tuesday, May 16, 11:00AM-12:20PM, Room: Parallel 5 (Room #4+7+8), Chair: Jie Liu

11:00AM Action Unit Selective Feature Maps in Deep Networks for Facial Expression Recognition [#628]

Yuqian Zhou and Bertram Shi

11:20AM How to Get Pavement Distress Detection Ready for Deep Learning? A Systematic Approach [#660]

Markus Eisenbach, Ronny Stricker, Daniel Seichter, Karl Amende, Klaus Debes, Maximilian Sesselmann, Dirk Ebersbach, Ulrike Stoeckert and Horst-Michael Gross

11:40AM Deep Neural Networks for Kitchen Activity Recognition [#723]

Juarez Monteiro, Roger Granada, Rodrigo Barros and Felipe Meneguzzi

12:00PM Deep Convolutional Neural Networks for Pedestrian Detection with Skip Pooling [#491]

Jie Liu, Xingkun Gao, Nianyuan Bao, Jie Tang and Gangshan Wu

Session theory6: Theory 6
Tuesday, May 16, 11:00AM-12:20PM, Room: Parallel 6 (Room #5+6), Chair: Ulf Johansson

11:00AM Balanced Self-Paced Learning with Feature Corruption [#270]

Yazhou Ren, Peng Zhao, Zenglin Xu and Dezhong Yao

11:20AM Model-Agnostic Nonconformity Functions for Conformal Classification [#485]

Ulf Johansson, Henrik Linusson, Tuve Lofstrom and Henrik Bostrom

11:40AM DropIn: Making Reservoir Computing Neural Networks Robust to Missing Inputs by Dropout [#629]

Davide Bacciu, Francesco Crecchi and Davide Morelli

12:00PM Information-Theoretic Dataset Selection for Fast Kernel Learning [#598]

Antonio Paiva

Session Plen4: Plenary session 4: Paul Werbos
Tuesday, May 16, 1:30PM-2:30PM, Room: La Perouse, Chair: Robert Kozma

1:30PM Backpropagation in the Brain and More Advanced Learning Systems

Paul Werbos

Panel Session Panel2: Cybersecurity Intelligence
Tuesday, May 16, 2:50PM-4:30PM, Room: La Perouse, Chair: Catherine Huang

Special Session S12+29: Datastream Mining
Tuesday, May 16, 2:50PM-4:30PM, Room: Parallel 1 (Cook), Chair: Ru Xui; Mahardhika Pratama

2:50PM Power Plant Performance Modeling with Concept Drift [#640]

Rui Xu, Yunwen Xu and WeiZhong Yan

3:10PM Concept Drift Learning with Alternating Learners [#509]

Yunwen Xu, Rui Xu, Weizhong Yan and Paul Ardis

3:30PM Parametric System Identification Using Deep Convolutional Neural Networks [#745]

Sahika Genc

3:50PM Online Query by Committee for Active Learning from Drifting Data Streams [#860]

Bartosz Krawczyk and Michal Wozniak

4:10PM Sub-Event Detection from Tweets [#735]

Satya Katragadda, Ryan Benton and Vijay Raghavan

Session lang: Natural language processing
Tuesday, May 16, 2:50PM-4:30PM, Room: Parallel 2 (Room #1+13+14), Chair: Minho Lee

2:50PM Symbolic Manipulation Based on Deep Neural Networks and its Application to Axiom Discovery [#20]

Cheng-Hao Cai, Dengfeng Ke, Yanyan Xu and Kaile Su

3:10PM Significance of neural phonotactic models for large-scale spoken language identification [#169]

Brij Mohan Lal Srivastava, Hari Krishna Vydana, Anil Kumar Vuppala and Manish Shrivastava

3:30PM Temporal Hierarchies in Multilayer Gated Recurrent Neural Networks for Language Models [#861]

Dennis Singh Moirangthem and Minho Lee

3:50PM Convolution Neural Network Based Syntactic and Semantic Aware Paraphrase Identification [#129]

Xiang Zhang, Wenge Rong, Jingshuang Liu, Chuan Tian and Zhang Xiong

4:10PM Alleviating Overfitting for Polysemous Words for Word Representation Estimation Using Lexicons [#562]

Yuanzhi Ke and Masafumi Hagiwara

Special Session S32a: Reservoir computing in hardware 1
Tuesday, May 16, 2:50PM-4:30PM, Room: Parallel 3 (Room #2+11+12), Chair: Cory Merkel

2:50PM Hardware Implementation of Echo State Networks using Memristor Double Crossbar Arrays [#820]

Amr M. Hassan, Hai (Helen) Li and Yiran Chen

3:10PM Reservoir Computing in materio: A Computational Framework for in materio Computing [#304]

Matthew Dale, Susan Stepney, Martin Trefzer and Julian Miller

3:30PM Design of a Time Delay Reservoir Using Stochastic Logic: A Feasibility Study [#708]

Cory Merkel

3:50PM Structure Optimization of Dynamic Reservoir Ensemble Using Genetic Algorithm [#822]

Wei Wang, Hsiao-Tien Fan and Zhanpeng Jin

4:10PM Linear Dynamical Based Models for Sequential Domains [#738]

Luca Pasa, Alessandro Sperduti and Peter Tino

Session spike3: Spiking neuron: hardware
Tuesday, May 16, 2:50PM-4:30PM, Room: Parallel 4 (Room #3+10+9), Chair: Johannes Schemmel

2:50PM Robustness from structure: Inference with hierarchical spiking networks on analog neuromorphic hardware [#695]

Mihai A. Petrovici, Anna Schroeder, Oliver Breitwieser, Andreas Gruebl, Johannes Schemmel and Karlheinz Meier

3:10PM An Accelerated Analog Neuromophic Hardware System Emulating NMDA- and Calcium-Based Non-Linear Dendrites [#621]

Johannes Schemmel, Laura Kriener, Paul Mueller and Karlheinz Meier

3:30PM Neuromorphic Hardware In The Loop: Training a Deep Spiking Network on the BrainScaleS Wafer-Scale System [#730]

Sebastian Schmitt, Johann Klaehn, Guillaume Bellec, Andreas Gruebl, Maurice Guettler, Andreas Hartel, Stephan Hartmann, Dan Husmann, Kai Husmann, Vitali Karasenko, Mitja Kleider, Christoph Koke, Christian Mauch, Eric Mueller, Paul Mueller, Johannes Partzsch, Mihai A. Petrovici, Stefan Schiefer, Stefan Scholze, Bernhard Vogginger, Robert Legenstein, Wolfgang Maass, Christian Mayr, Johannes Schemmel and Karlheinz Meier

3:50PM A Software-equivalent SNN Hardware using RRAM-array for Asynchronous Real-time Learning [#897]

Aditya Shukla, Vinay Kumar and Udayan Ganguly

4:10PM Navigating Mobile Robots to Target in Near Shortest Time using Reinforcement Learning with Spiking Neural Networks [#438]

Amarnath Mahadevuni and Peng Li

Session deep7: Deep learning 7: Applications
Tuesday, May 16, 2:50PM-4:30PM, Room: Parallel 5 (Room #4+7+8), Chair: Rodrigo Barros

2:50PM Scalable Deep Traffic Flow Neural Networks for Urban Traffic Congestion Prediction [#841]

Mohammadhani Fouladgar, Mostafa Parchami, Ramez Elmasri and Amir Ghaderi

3:10PM Deep Learning of Texture and Structural Features for Multiclass Alzheimer's Disease Classification [#686]

Chester Dolph, Mahbubul Alam, Zeina Shboul, Manar Samad and Khan Iftekharuddin

3:30PM Virtual Guide Dog: An Application to Support Visually-Impaired People through Deep Convolutional Neural Networks [#696]

Juarez Monteiro, Joao Paulo Aires, Roger Granada, Rodrigo Barros and Felipe Meneguzzi

3:50PM Vertex Reconstruction of Neutrino Interactions using Deep Learning [#739]

Adam Terwilliger, Gabriel Perdue, David Isele, Robert Patton and Steven Young

4:10PM Learning Deep Representations with Diode Loss for Quantization-based Similarity Search [#46]

Shicong Liu and Hongtao Lu

Session theory7: Theory 7
Tuesday, May 16, 2:50PM-4:30PM, Room: Parallel 6 (Room #5+6), Chair: Tharun Reddy

2:50PM Using Information Fractal Dimension as Temperature in Restricted Boltzmann Machine [#821]

Muhammad Salman Khan, Sana Siddiqui and Ken Ferens

3:10PM HJB Equation Based Learning Scheme for Neural Networks [#337]

Vipul Arora, Laxmidhar Behera, Tharun Reddy and Ajay Yadav

3:30PM Supervised Classification via Constrained Subspace and Tensor Sparse Representation [#380]

Liang Liao, Stephen Maybank, Yanning Zhang and Xin Liu

3:50PM Parallel Dynamic Search Fireworks Algorithm with Linearly Decreased Dimension Number Strategy for Solving Conditional Nonlinear Optimal Perturbation [#472]

Bin Mu, Junhui Zhao, Shijin Yuan and Jinghao Yan

4:10PM Parametric Identification of Stochastic Interaction Networks [#39]

Hana Baili

Session time: Temporal processing
Tuesday, May 16, 4:40PM-6:20PM, Room: Parallel 1 (Cook), Chair: Seif-Eddine Benkabou

4:40PM State Initialization for Recurrent Neural Network Modeling of Time-Series Data [#127]

Nima Mohajerin and Steven Waslander

5:00PM A Framework for Benchmarking Machine Learning Methods Using Linear Models for Univariate Time Series Prediction [#177]

Rebecca Salles, Laura Assis, Gustavo Guedes, Eduardo Bezerra, Fabio Porto and Eduardo Ogasawara

5:20PM Adaptive Learning Method of Recurrent Temporal Deep Belief Network to Analyze Time Series Data [#525]

Takumi Ichimura and Shin Kamada

5:40PM L2-Type Regularization-based Unsupervised Anomaly Detection from Temporal Data [#397]

Seif-Eddine Benkabou, Khalid Benabdeslem and Canitia Bruno

6:00PM Spatio-Temporal Cellular Automata-Based Filtering for Image Sequence Denoising [#398]

Blanca Priego, Abraham Prieto, Richard J. Duro and Jocelyn Chanussot

Session text: Text and document processing
Tuesday, May 16, 4:40PM-6:20PM, Room: Parallel 2 (Room #1+13+14), Chair: Jonatas Wehrmann

4:40PM Tightly-coupled Convolutional Neural Network with Spatial-temporal Memory for Text Classification [#557]

Shiyao Wang and Zhidong Deng

5:00PM Ensemble Application of Convolutional and Recurrent Neural Networks for Multi-label Text Categorization [#160]

Guibin Chen, Deheng Ye, Zhenchang Xing, Jieshan Chen and Erik Cambria

5:20PM A Character-based Convolutional Neural Network for Language-Agnostic Twitter Sentiment Analysis [#793]

Jonatas Wehrmann, Willian Becker, Henry Cagnini and Rodrigo Barros

5:40PM Sentiment Classification with the Exploration of Overall Opinion Sentences [#902]

Xiaojia Pu, Gangshan Wu and Chunfeng Yuan

6:00PM A Model of Extended Paragraph Vector for Document Categorization and Trend Analysis [#482]

Pengfei Liu, King Keung Wu and Helen Meng

Special Session S32b: Reservoir computing in hardware 2
Tuesday, May 16, 4:40PM-6:20PM, Room: Parallel 3 (Room #2+11+12), Chair: Nathan McDonald

4:40PM Photonic Reservoir Computer With Output Feedback for Chaotic Time Series Prediction [#224]

Piotr Antonik, Michiel Hermans, Marc Haelterman and Serge Massar

5:00PM Robustness of a Memristor Based Liquid State Machine [#687]

Nicholas Soures, Lydia Hays and Dhireesha Kudithipudi

5:20PM A Digital Neuromorphic Architecture Efficiently Facilitating Complex Synaptic Response Functions Applied to Liquid State Machines [#818]

Michael Smith, Aaron Hill, Kristofor Carlson, Craig Vineyard, Jonathon Donaldson, David Follett, Pamela Follett, John Naegle, Conrad James and James Aimone

5:40PM Reservoir Computing and Extreme Learning Machines using Pairs of Cellular Automata Rules [#646]

Nathan McDonald

6:00PM Maximizing Memory Capacity of Echo State Networks with Orthogonalized Reservoirs [#561]

Igor Farkas and Peter Gergel

Session spike4: Spiking neurons
Tuesday, May 16, 4:40PM-6:20PM, Room: Parallel 4 (Room #3+10+9), Chair: Arunava Banerjee

4:40PM Learning Deterministic Spiking Neuron Feedback Controllers [#636]

Tae Seung Kang and Arunava Banerjee

5:00PM INXS: Bridging the Throughput and Energy Gap for Spiking Neural Networks [#867]

Surya Narayanan, Ali Shafiee and Rajeev Balasubramonian

5:20PM Image Segmentation with Stochastic Magnetic Tunnel Junctions and Spiking Neurons [#532]

Chamika Liyanagedera, Parami Wijesinghe, Akhilesh Jaiswal and Kaushik Roy

5:40PM BrainGrid+Workbench: High-Performance/High-Quality Neural Simulation [#135]

Michael Stiber, Fumitaka Kawasaki, Delmar Davis, Hazeline Asuncion, Jewel Lee and Destiny Boyer

6:00PM Generalized Model of Biological Neural Networks: Progressive Operational Perceptrons [#37]

Kiranyaz Serkan, Ince Turker, Iosifidis Alexandros and Gabbouj Moncef

Session convnet1: Convolutional neural networks 1
Tuesday, May 16, 4:40PM-6:20PM, Room: Parallel 5 (Room #4+7+8), Chair: Thomas Martinetz

4:40PM Recursive Autoconvolution for Unsupervised Learning of Convolutional Neural Networks [#170]

Boris Knyazev, Erhardt Barth and Thomas Martinetz

5:00PM FxpNet: Training a Deep Convolutional Neural Network in Fixed-Point Representation [#373]

Xi Chen, Xiaolin Hu, Hucheng Zhou and Ningyi Xu

5:20PM Accelerating Convolutional Neural Networks by Group-wise 2D-filter Pruning [#374]

Niange Yu, Shi Qiu, Xiaolin Hu and Jianmin Li

5:40PM Exploring Optimized Accelerator Design for Binarized Convolutional Neural Networks [#592]

Kodai Ueyoshi, Kota Ando, Kentaro Orimo, Masayuki Ikebe, Tetsuya Asai and Masato Motomura

6:00PM Transfer Learning for Automated Optical Inspection [#855]

Seunghyeon Kim, Wooyoung Kim, Yung-Kyun Noh and Frank Park

Session theory8: Theory 8
Tuesday, May 16, 4:40PM-6:20PM, Room: Parallel 6 (Room #5+6), Chair: Liang Zhao

4:40PM Low and High Level Classification using Stacking [#513]

Thiago Covoes and Liang Zhao

5:00PM Improving the Performance of Neural Networks in Regression Tasks Using Drawering [#520]

Konrad Zolna

5:20PM Top-down Strategies for Hierarchical Classification of Transposable Elements with Neural Networks [#527]

Felipe Kenji Nakano, Walter Jose Pinto, Gisele Lobo Pappa and Ricardo Cerri

5:40PM Ternary Neural Networks for Resource-Efficient AI Applications [#652]

Hande Alemdar, Vincent Leroy, Adrien Prost-Boucle and Frederic Petrot

6:00PM Manifold Learning with Iterative Dimensionality Photo-Projection [#611]

Daniel Lueckehe, Stefan Oehmcke and Oliver Kramer

Plenary Poster Session P2: Poster session #1 (random order, for now)
Tuesday, May 16, 7:30PM-9:00PM, Room: Arteaga, Chair: Richard Duro

P301 Hexpo: A Vanishing-Proof Activation Function [#115]

Shumin Kong and Masahiro Takatsuka

P302 Potential Layer-Wise Supervised Learning for Training Multi-Layered Neural Networks [#64]

Ryotaro Kamimura

P303 A Quotient Gradient Method to Train Artificial Neural Networks [#47]

Hamid Khodabandehlou and Mohammad Sami Fadali

P304 ABiRCNN with Neural Tensor Network for Answer Selection [#98]

Xingwei He and Hua Xu

P305 Three-Step DTZNN Algorithm for Time-Varying Linear Matrix Inequality Solving [#540]

Dongsheng Guo, Aifen Li, Xinjie Lin, Feng Xu and Zhaozhu Su

P306 On the Memory Properties of Recurrent Neural Models [#54]

Arthur Jack Russell, Emmanouil Benetos and Artur d'Avila Garcez

P307 An Alternative Approach for Binary and Categorical Self-Organizing Maps [#781]

Alessandra Santana, Alessandra Morais and Marcos Quiles

P308 On Self-Organizing Maps for Orienteering Problems [#209]

Jan Faigl

P309 Are Recurrent Associative Memories Good Models of Decision Making? Modelling discrimination decisions from different perspectives [#211]

Bradley Harding, Marc-Andre Goulet, Denis Cousineau and Sylvain Chartier

P310 EnsembleSNN: Distributed Assistive STDP Learning for Energy-Efficient Recognition in Spiking Neural Networks [#514]

Priyadarshini Panda, Gopalakrishnan Srinivasan and Kaushik Roy

P311 The Effect of Biologically-Inspired Mechanisms in Spiking Neural Networks for Neuromorphic Implementation [#395]

Catherine Schuman

P312 Comparison of Echo State Network Output Layer Classification Methods on Noisy Data [#490]

Ashley Prater

P313 Impact of biased mislabeling on learning with deep networks. [#711]

Farzaneh S. Fard, Paul Hollensen, Stuart Mcilory and Thomas Trappenberg

P314 A Class-specific Copy Network for Handling the Rare Word Problem in Neural Machine Translation [#497]

Feng Wang, Wei Chen, Zhen Yang, Xiao Wei Zhang, Shuan Xu and Bo Xu

P315 Transforming Sensor Data to the Image Domain for Deep Learning - an Application to Footstep Detection [#874]

Monit Shah Singh, Vinaychandran Pondenkandath, Bo Zhou, Paul Lukowicz and Marcus Liwicki

P316 Convolutional Neural Networks with Multi-valued Neurons [#458]

Yuki Kominami, Hideki Ogawa and Kazuyuki Murase

P317 On improving Recurrent Neural Network for Image Classification [#27]

Chandra B. and Rajeshkumar Sharma

P318 Noisy Deep Dictionary Learning: Application to Alzheimer's Disease Classification [#440]

Vanika Singhal and Angshul Majumdar

P319 Improvement of Learning for CNN with ReLU Activation by Sparse Regularization [#289]

Hidenori Ide and Takio Kurita

P320 Optimization and evaluation of deep architectures for ambient awareness on a sidewalk [#794]

Faruk Ahmed and Mohammed Yeasin

P321 Deep Learning and Block Go [#369]

Shi-Jim Yen, Chingnung Lin, Guan-Lun Cheng and Jr-Chang Chen

P322 The RNN-ELM Classifier [#32]

Athanasios Vlontzos

P323 A Neuron-Output-Significant-Index-based Self-organization Pruning Algorithm for S-LINN [#789]

Lizhen Dai, Gang Yang and Hui Yang

P324 Adaptive Filtering Based on Extended Kernel Recursive Maximum Correntropy [#676]

Shengyang Luan, Tianshuang Qiu and Jose Principe

P325 ADL: Active Dictionary Learning for Sparse Representation [#263]

Bo Tang, Jin Xu, Haibo He and Hong Man

P326 A Web-based Tool for Segmentation and Automatic Transcription of Historical Documents [#612]

Fouad Slimane, Andrea Mazzei, Orlin Topalov, Greta Verzi and Frederic Kaplan

P327 Low n-Rank Tensor Log-Linear Models for Classification [#750]

Caleb Nelson, Yulo Leake and Brian Hutchinson

P328 Machine Learning Approaches for the Prediction of Obesity using Publicly Available Genetic Profiles [#312]

Casimiro Aday Curbelo, Paul Fergus, Abir Jaafar Hussain, Dhiya Al-Jumeily, Basma Abdulaimma, Hind Jade and Radi Naeem

P329 FEMaR: A Finite Element Machine for Regression Problems [#91]

Danillo Pereira, Joao Papa and Andre Souza

P330 Adversarial Learning Games with Deep Learning Models [#81]

Aneesh Sreevallabh Chivukula and Wei Liu

P331 Towards the Discrimination of Primary and Secondary Headache: An Intelligent Systems Approach [#226]

Robert Keight, Dhiya Al-Jumeily, Abir Hussain, Mohammed Al-Jumeily and Mallucci Conor

P332 HMM-based Gesture Recognition Sytem Using Kinect Sensor for Improvised Human-Computer Interaction [#550]

Sriparna Saha, Rimita Lahiri, Amit Konar, Bonny Banerjee and Atulya K. Nagar

P333 Projected Clustering via Robust Orthogonal Least Square Regression with Optimal Scaling [#101]

Rui Zhang, Feiping Nie and Xuelong Li

P334 Multi-View Hard C-Means with Automated Weighting of Views and Variables [#122]

Rodrigo de Araujo, Francisco de Carvalho and Yves Lechevallier

P335 Interpreting Multivariate Membership Degrees of Fuzzy Clustering Methods: a Strategy [#198]

Bruno Pimentel, Marcilio de Souto and Renata de Souza

P336 A Neuro-based Network for On-line Topological Map Building and Dynamic Path Planning [#834]

Wei Hong Chin, Azhar Aulia Saputra and Naoyuki Kubota

P337 The LICORS Cabinet: Nonparametric Light Cone Methods for Spatio-Temporal Modeling [#13]

George Montanez and Cosma Shalizi

P338 Mobile Robot Control Based on Hybrid Neuro-Fuzzy Value Gradient Reinforcement Learning [#771]

Seaar Al-Dabooni and Donald Wunsch

P339 Towards Enabling Deep Learning Techniques for Adaptive Dynamic Programming [#543]

Zhen Ni, Malla Naresh and Zhong Xiangnan

P340 Deep Convolutional and Recurrent Writer [#325]

Sadaf Gulshad and Jong-Hwan Kim

P341 An Efficient Semi-Supervised SVM for Anomaly Detection [#367]

Junae Kim and Paul Montague

P342 Two Improved Continuous Bag-of-Word Models [#168]

Qi Wang, Jungang Xu, Hong Chen and Ben He

P343 Human Action Recognition using Transfer Learning with Deep Representations [#196]

Allah Bux Sargano, Xiaofeng Wang, Plamen Angelov and Zulfiqar Habib

P344 Recent Advances in Video-Based Human Action Recognition using Deep Learning: A Review [#578]

Di Wu, Nabin Sharma and Michael Blumenstein

P345 Object Recognition using Cellular Simultaneous Recurrent Networks and Convolutional Neural Network [#933]

Md Zahangir Alom, M. Alam, Tarek M. Taha and K.M. Iftekharuddin

P346 Random Fourier Feature Kernel Recursive Least Squares [#229]

Zhengda Qin, Badong Chen and Nanning Zheng

P347 Relevance Effect: Exploiting Bayesian Networks to Improve Supervised Learning [#247]

Ardavan S. Nobandegani, Jad Kabbara and Ioannis N. Psaromiligkos

P348 Kernel Group Sparse Representation based Classifier for Multimodal Biometrics [#843]

Gaurav Goswami, Mayank Vatsa, Richa Singh and Angshul Majumdar

P349 Pose Invariance Through Registration for Hierarchical Feature Based Pattern Recognition Systems [#883]

Noel Khan, David Elizondo, Benjamin Passow and Pamela Hardaker

P350 Joint Optimization of Feature Transform and Instance Weighting for Domain Adaptation [#238]

Masato Ishii and Atsushi Sato

P351 Feature Selection for Biometric Recognition Based on Electrocardiogram Signals [#749]

Felipe G. Silva Teodoro, Sarajane M. Peres and Clodoaldo Lima

P352 EMNIST: extending MNIST to handwritten letters [#706]

Gregory Cohen, Saeed Afshar, Jonathan Tapson and Andre van Schaik

P353 Improved maximum inner product search with better theoretical guarantees [#618]

Omid Keivani, Kaushik Sinha and Parikshit Ram

P354 SVRG with Adaptive Epoch Size [#801]

Erxue Min, Yawei Zhao, Jun Long, Chengkun Wu, Kuan Li and Jianping Yin

P355 Temporal Progression in Functional Connectivity Determines Individual Differences in Working memory Capacity [#455]

Pouya Bashivan, Gavin Bidelman and Yeasin Mohammed

P356 A Chaotic Ring Neural Oscillator of Three Nonmonotonic Neurons [#539]

Yo Horikawa

P357 The Use of One-Class Classifiers for Differentiating Healthy from Epileptic EEG Segments [#499]

Jefferson Oliva and Joao Luis Rosa

P358 Signal Coding and Reconstruction Using Deterministic Spiking Neurons [#747]

Gokhan Kaya and Arunava Banerjee

P359 Training a Two-choice Decision-making Model with Environment Feedback [#121]

Hui Wei and Yijie Bu

P360 Deteriorating neural connectivity of the hippocampal episodic memory network in mTBI patients: a cohort study [#88]

Hao Yan, Chuanzhu Sun, Xiaocui Wang and Lijun Bai

P361 Dynamic Control Using Feedforward Networks with Adaptive Delay and Facilitating Neural Dynamics [#461]

Khuong Nguyen and Yoonsuck Choe

P362 Ensemble of Classifiers Applied to Motor Imagery Task Classification for BCI Applications [#753]

Alimed Celecia, Rene Gonzalez, Marley Vellasco and Pedro Vellasco

P363 A Wireless Steady State Visually Evoked Potential-based BCI Eating Assistive System [#465]

Ching-Yu Chiu, Avinash Kumar Singh, Yu-Kai Wang, Jung-Tai King and Chin-Teng Lin

P364 Network Intrusion Detection for Cyber Security on Neuromorphic Computing System [#791]

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P365 Brewing the first ever automatic memory management utility for SpiNNaker: Real-Time Garbage Collection for STDP simulations [#62]

Mantas Mikaitis and David R. Lester

P366 Exploiting the Use of Recurrent Neural Networks for Driver Behavior Profiling [#210]

Eduardo Carvalho, Bruno Ferreira, Jair Ferreira Junior, Cleidson de Souza, Hanna Carvalho, Yoshihiko Suhara, Alex Pentland and Gustavo Pessin

P367 In vivo Classification of Inflammation in Blood Vessels with Convolutional Neural Networks [#805]

Stuart Mcilroy, Yoshimasa Kubo, James Toguri, Christian Lehmann and Thomas Trappenberg

P368 An Investigation of High-Resolution Modeling Units of Deep Neural Networks for Acoustic Scene Classification [#298]

Xiao Bao, Tian Gao, Jun Du and Li-Rong Dai

P369 Detection of Motorcyclists without Helmet in Videos using Convolutional Neural Network [#394]

C. Vishnu, Dinesh Singh, C. Krishna Mohan and Ch. Sobhan Babu

P370 Fast Diagnosis of Bowel Activities [#275]

Yi Huang, Song Insu, Priyanka Rana and Guan Koh

P371 A comparative study of complexity of handwritten Bharati characters with that of major Indian scripts [#426]

Manali Naik and V. Srinivasa Chakravarthy

P372 The Classification of Periodic Light Curves from non-survey optimized observational data through Automated Extraction of Phase-based Visual Features [#342]

Paul (Ross) McWhirter, Iain Steele, Dhiya Al-Jumeily, Abir Hussain and Marley Vellasco

P373 Weighted Numerical and Categorical Attribute Clustering in Data Streams [#905]

Wen-Bin Liang, Chang-Dong Wang and Jian-Huang Lai

P374 Phonetic State Relation Graph Regularized Deep Neural Network for Robust Acoustic Model [#147]

Hoon Chung, Yoo Rhee Oh, Sung Joo Lee and Jeon Gue Park

P375 Small-footprint convolutional neural network for spoofing detection [#144]

Heinrich Dinkel, Yanmin Qian and Kai Yu

P376 Biomorphic Modeling of Phoneme Identification and Classification Based on an Evolving Fuzzy-neural Network - From Hardcomputing to Softcomputing [#430]

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P377 Biologically Inspired Reinforcement Learning for Mobile Robot Collision Avoidance [#662]

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P379 Comprehensive Study of Features for Subject-independent Emotion Recognition [#537]

Ashutosh Adhikari, Savitha Ramasamy and Suresh Sundaram

P380 Helicopter Load Signal and Fatigue Life Estimation Using Low Dimensional Spaces [#506]

Catherine Cheung, Julio J. Valdes and Alejandro Lehman-Rubio

P381 Semi-supervised Saliency Classifier Based on a Linear Feedback Control System Model [#760]

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P383 Structural Superpixel Descriptor for Visual Tracking [#102]

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P384 Wavelet transform and adaptive arithmetic coding techniques for EEG lossy compression [#798]

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P385 Multi-Bernoulli Filter for Group Object Tracking and Its Gaussian-Wishart Implementation [#206]

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P386 Prediction of Natural Guidewire Rotation Using an sEMG-based NARX Neural Network [#31]

Xiao-Hu Zhou, Gui-Bin Bian, Xiao-Liang Xie, Zeng-Guang Hou and Jian-Long Hao

P387 Predicting Evolving Chaotic Time Series with Fuzzy Neural Networks [#113]

Frank Z. Xing, Erik Cambria and Xiaomei Zou

P388 Information and Knowing When to Forget It [#517]

Rohit Sharma and Ognjen Arandjelovic

P389 State Space Reconstruction from Noisy Nonlinear Time Series: An Autoencoder-based Approach [#541]

He Jiang and Haibo He

P390 Symbolic representations of time series applied to biometric recognition based on ECG signals [#242]

Henrique dos Santos Passos, Bruno Matarazzo Duru, Edenilton Lima de Oliveira, Felipe Gustavo Silva Teodoro, Sarajane M. Peres and Clodoaldo A. M. Lima

P391 Aspect-Based Sentiment Analysis Using ABPCS Model and SVMperf in Chinese Reviews [#157]

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P392 Text Clustering using Enhanced PLSA with Word Correlation [#762]

Qian Zuo, Chang-Dong Wang and Jian-Huang Lai

P393 Convex Local Sensitive Low Rank Matrix Approximation [#782]

Chongya Li, Lin Zhu, Wenzheng Bao, Yongli Jiang, Changan Yuan and De-Shuang Huang

P394 Fuzzy controlled VSC of battery storage system for seamless transition of microgrid between grid-tied and islanded mode [#199]

Chinmay Shah, Heidar Malki and Mehdi Abolhassani

P395 Prediction of Residual Power Peaks in Industrial Microgrids using Artificial Neural Networks [#881]

Thorsten Vogt, Daniel Weber, Oliver Wallscheid and Joachim Boecker

P396 Recurrent Reinforcement Learning with Expected Maximum Drawdown Risk for an Optimal Portfolio Rebalancing Strategy [#740]

Saud AlMalhdi and Steve Yang

P397 An intelligent learning-based watermarking scheme for outsourced biomedical time series data [#690]

Trung Duy Pham, Dat Tran and Wanli Ma

P398 A First Approach using Neural Network to Estimating Soil Bulk Density of Urucu Basin in Central Amazon-Brazil [#712]

Tayana Moreira, D. Brandao, D. Haddad, M. Ceddia, R. Oliveira and E. Pinheiro

P399 Mining Unstructured Processes: An Exploratory Study on a Distance Learning Domain [#133]

Ana R. C. Maita, Marcelo Fantinato, Sarajane M. Peres, Lucineia H. Thom and Patrick C. K. Hung

P400 Regression-forests-based Estimation of Blood Pressure using the Pulse Transit Time Obtained by Facial Photoplethysmogram [#414]

Mototaka Yoshioka and Souksakhone Bounyong

P401 Constrained LMS for Dynamic Flow Networks [#422]

Konstantinos Eftaxias, Clive Cheong Took, Bruno Venturini and David Arscott

P402 Integrative Computing Method for the Prediction of Zinc-binding Sites in Proteins [#183]

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P403 A Language-Independent Hybrid Approach for Multi-Word Expression Extraction [#272]

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P404 Learning User Distance from Multiple Social Networks [#280]

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P405 Clickthrough Refinement for Improved Graph Ranking [#654]

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P406 Deep Learning Inspired Prognostics Scheme for Applications Generating Big Data [#729]

Krishnan Raghavan, Jagannathan Sarangapani and V. A. Samaranayake

P407 Critical Clearing Time Prediction Using Recurrent Neural Networks [#358]

Komla Folly, Paul Olulope and Ganesh Venayagamoorthy

P408 Constrained versus Unconstrained Learning in Generalized Recurrent Network for Image Processing [#434]

Lasitha Vidyaratne, Mahbubul Alam, Keith Anderson and Khan Iftekharuddin

P409 A Continuous Hopfield Neural Network Algorithm based on Dynamic Step for the Traveling Salesman Problem [#318]

Chunni Zhong, Zhenzhong Chu, Chaomin Luo and Wenyang Gan

P410 Acoustic Novelty Detection with Adversarial Autoencoders [#338]

Emanuele Principi, Fabio Vesperini, Stefano Squartini and Francesco Piazza

P411 Domain Adaptation of POS Taggers without Handcrafted Features [#812]

Irving Rodrigues, Eraldo Fernandes and Cicero dos Santos

P412 Scaling Up Deep Reinforcement Learning for Multi-Domain Dialogue Systems [#474]

Heriberto Cuayahuitl, Seunghak Yu, Ashley Williamson and Jacob Carse

P413 Kernel and Random Extreme Learning Machine applied to Submersible Motor Pump Fault Diagnosis [#108]

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P414 A Multistage Collaborative Filtering Algorithm for Fall Detection [#184]

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P415 Piecewise Multi-linear Fuzzy Extreme Learning Machine for the Implementation of Intelligent Agents [#650]

Ines del Campo, Victoria Martinez, Flavia Orosa, Javier Echanobe, Estibalitz Asua and Koldo Basterretxea

P416 Extreme Learning Machine as a Generalizable Classification Engine [#347]

Abdullah M. Zyarah and Dhireesha Kudithipudi

P417 Cellular Computational Extreme Learning Machine Network Frequency Predictions in a Power System [#778]

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P418 A Robust Method for the Interpretation of Genomic Data [#355]

Jade Hind, Paulo Lisboa, Abir Hussain, Dhiya Al-Jumeily, Casimiro Aday Curbelo Montanez and Basma Abdulaimma

P419 A Support Vector Machine Approach to Identification of Proteins Relevant to Learning in a Mouse Model of Down Syndrome [#768]

Tara Eicher and Kaushik Sinha

P420 Deep Graph Embeddings for the Analysis of Short Heartbeat Interval Time Series [#900]

Tamas Madl

P421 Short-Term Plasticity in a Liquid State Machine Biomimetic Robot Arm Controller [#75]

Ricardo de Azambuja, Frederico Klein, Samantha Adams, Martin Stoelen and Angelo Cangelosi

P422 STDP-based Unsupervised Learning of Memristive Spiking Neural Network by Morris-Lecar Model [#494]

Amirali Amirsoleimani, Majid Ahmadi and Arash Ahmadi

P423 Computational Paradigms using Oscillatory Networks based on State-Transition Devices [#803]

Abhinav Parihar, Nikhil Shukla, Matthew Jerry, Suman Datta and Arijit Raychowdhury

P424 A Randomized Neural Network for Data Streams [#310]

Mahardhika Pratama, Plamen P. Angelov, Jie Lu, Edwin Lughofer, Mukesh Prasad, Manjeevan Seera and Chee Peng Lim

P425 Structure-based Fitness Prediction for the Variable-structure DANNA Neuromorphic Architecture [#896]

Aleksander Klibisz, Grant Bruer, Catherine Schuman and James Plank

P426 Analog Hardware Implementation of Spike-Based Delayed Feedback Reservoir Computing System [#765]

Jialing Li, Chenyuan Zhao, Kian Hamedani and Yang Yi

P427 Paving the way for providing teaching feedback in automatic evaluation of open response assignments [#85]

Veronica Bolon-Canedo, Jorge Diez, Oscar Luaces, Antonio Bahamonde and Amparo Alonso-Betanzos

P428 Prediction of Graduation Delay Based on Student Performance [#886]

Tushar Ojha, Gregory Heileman, Manel Martinez-Ramon and Ahmad Slim

Session Plen5: Plenary session 5: Stephen Grossberg
Wednesday, May 17, 8:00AM-9:00AM, Room: La Perouse, Chair: Daniel Levine

8:00AM Towards Solving the Hard Problem of Consciousness: The Varieties of Brain Resonances and the Conscious Experiences that they Support

Stephen Grossberg

Special Session S08: Computational intelligence algorithms for digital audio applications
Wednesday, May 17, 9:20AM-10:40AM, Room: Parallel 1 (Cook), Chair: Emanuele Principi

9:20AM Convolutional Gated Recurrent Neural Network Incorporating Spatial Features for Audio Tagging [#633]

Yong Xu, Qiuqiang Kong, Qiang Huang, Wenwu Wang and Mark D. Plumbley

9:40AM Deep Recurrent Music Writer: Memory-enhanced Variational Autoencoder-based Musical Score Composition and an Objective Measure [#602]

Romain Sabathe, Eduardo Coutinho and Bjoern Schuller

10:00AM Audio Event and Scene Recognition: A Unified Approach using Strongly and Weakly Labeled Data [#95]

Anurag Kumar and Bhiksha Raj

10:20AM On the Use of Deep Recurrent Neural Networks for Detecting Audio Spoofing Attacks [#410]

Simone Scardapane, Lucas Stoffl, Florian Rohrbein and Aurelio Uncini

Session text2: Text and document processing 2
Wednesday, May 17, 9:20AM-10:40AM, Room: Parallel 2 (Room #1+13+14), Chair: Frank Wood

9:20AM Multi-Sense Based Neural Machine Translation [#111]

Zhen Yang, Wei Chen, Feng Wang and Bo Xu

9:40AM Learning from Semantically Dependent Multi-Tasks [#256]

Bin Liu, Zenglin Xu, Bo Dai, Haoli Bai, Xianghong Fang, Yazhou Ren and Shandian Zhe

10:00AM Incorporating Loose-Structured Knowledge into Conversation Modeling via Recall-Gate LSTM [#314]

Zhen Xu, Bingquan Liu, Baoxun Wang, Chengjie Sun and Xiaolong Wang

10:20AM Using Synthetic Data to Train Neural Networks is Model-Based Reasoning [#751]

Tuan Anh Le, Atilim Gunes Baydin, Robert Zinkov and Frank Wood

Special Session S27a: Neuro-inspired computing with nanoelectronic devices 1
Wednesday, May 17, 9:20AM-10:40AM, Room: Parallel 3 (Room #2+11+12), Chair: Saibal Mukhopadhyay

9:20AM Enabling Bio-Plausible Multi-level STDP using CMOS Neurons with Dendrites and Bistable RRAMs [#215]

Xinyu Wu and Vishal Saxena

9:40AM On-chip Training of Memristor Based Deep Neural Networks [#727]

Raqibul Hasan, Tarek Taha and Chris Yakopcic

10:00AM Interpretability of Artificial Hydrocarbon Networks for Breast Cancer Classification [#523]

Hiram Ponce and Ma de Lourdes Martinez-Villasenor

10:20AM Cognitive Domain Ontologies on the TrueNorth Neurosynaptic System [#824]

Nayim Rahman, Tanvir Atahary, Tarek Taha and Scott Douglass

Session cortex: Cortical modeling and simulation
Wednesday, May 17, 9:20AM-10:40AM, Room: Parallel 4 (Room #3+10+9), Chair: Bryan Tripp

9:20AM Similarities and Differences Between Stimulus Tuning in the Inferotemporal Visual Cortex and Convolutional Networks [#872]

Bryan Tripp

9:40AM Odor Recognition in an Attractor Network Model of the Mammalian Olfactory Cortex [#645]

Pawel Herman, Simon Benjaminsson and Anders Lansner

10:00AM Collective Discovery of Brain Networks with Unknown Groups [#244]

Xinyue Liu, Xiangnan Kong and Philip Yu

10:20AM A biologically inspired neuronal model of reward prediction error computation [#478]

Pramod Kaushik, Maxime Carrere, Frederic Alexandre and Bapi Raju Surampudi

Session convnet2: Convolutional neural networks 2
Wednesday, May 17, 9:20AM-10:40AM, Room: Parallel 5 (Room #4+7+8), Chair: Hui Jiang

9:20AM A Fast Method for Saliency Detection by Back-Propagating A Convolutional Neural Network and Clamping Its Partial Outputs [#143]

Hengyue Pan and Hui Jiang

9:40AM Identifying Spatial Relations in Images using Convolutional Neural Networks [#839]

Mandar Haldekar, Ashwinkumar Ganesan and Tim Oates

10:00AM Convolutional Bi-Directional LSTM for Detecting Offensive Query Suggestions in Web Search [#643]

Harish Yenala, Manoj Chinnakotla and Jay Goyal

10:20AM Convolutional Sparse Coding on Neurosynaptic Cognitive System [#785]

Md Zahangir Alom, Brian Van Essen, Adam T. Moody, David Peter Widemann and Tarek M. Taha

Session theory9: Theory 9
Wednesday, May 17, 9:20AM-10:40AM, Room: Parallel 6 (Room #5+6), Chair: Junpei Zhong

9:20AM Label Confidence based AdaBoost Algorithm [#51]

Zhe Luo, Xin Dang and Yixin Chen

9:40AM Toward Abstraction from Multi-modal Data: Empirical Studies on Multiple Time-scale Recurrent Models [#156]

Junpei Zhong, Angelo Cangelosi and Tetsuya Ogata

10:00AM Self-Training with Adaptive Regularization for S3VM [#191]

Edward Cheung and Yuying Li

10:20AM Universum Learning for SVM Regression [#366]

Sauptik Dhar and Vladimir Cherkassky

Special Session S20: Machine learning for business analytics
Wednesday, May 17, 11:00AM-12:20PM, Room: Parallel 1 (Cook), Chair: Chul Sung

11:00AM Improving Recommendation Accuracy using Networks of Substitutable and Complementary Products [#274]

Tong Zhao, Julian McAuley, Mengya Li and Irwin King

11:20AM Cold-start, Warm-start and Everything in Between: An Autoencoder based Approach to Recommendation [#563]

Anant Jain and Angshul Majumdar

11:40AM Evaluating Deep Learning in Churn Prediction for Everything-as-a-Service in the Cloud [#848]

Chul Sung, Chunhui Higgins, Bo Zhang and Yoonsuck Choe

12:00PM It's About Time! Modeling Customer Behaviors as the Secretary Problem in Daily Deal Websites [#284]

Tong Zhao, Mantian Hu, Razieh Rahimi and Irwin King

Special Session S14+18: Explainability and Interpretability in Machine Learning
Wednesday, May 17, 11:00AM-12:20PM, Room: Parallel 2 (Room #1+13+14), Chair: Isabelle Guyon; Michael Biehl

11:00AM Can we Explain Natural Language Inference Decisions taken with Neural Networks? Inference Rules in Distributed Representations [#90]

Fabio Massimo Zanzotto and Lorenzo Ferrone

11:20AM Design of an Explainable Machine Learning Challenge for Video Interviews [#331]

Hugo Jair Escalante, Isabelle Guyon, Sergio Escalera, Julio Jaques Jr., Xavier Baro, Evelyne Viegas, Yagmur Gucluturk, Umut Guclu, Marcel A. J. van Gerven, Rob van Lier, Meysam Madadi and Stephane Ayache

11:40AM Classification of sparsely and irregularly sampled time series: a learning in model space approach [#845]

Yuan Shen, Peter Tino and Krasimira Tsaneva-Atanasova

12:00PM Marker Selection for the Detection of Trisomy 21 Using Generalized Matrix Learning Vector Quantization [#605]

Andreas Neocleous, Costas Neocleous, Christos N. Schizas, Michael Biehl and Nicolai Petkov

Special Session S27b: Neuro-inspired computing with nanoelectronic devices 2
Wednesday, May 17, 11:00AM-12:20PM, Room: Parallel 3 (Room #2+11+12), Chair: Kaushik Roy

11:00AM Exponential-Weight Multilayer Perceptron [#388]

Farnood Merrikh Bayat, Xinjie Guo and Dmitri Strukov

11:20AM On-Chip Training of Recurrent Neural Networks with Limited Numerical Precision [#829]

Taesik Na, Jong Hwan Ko, Jaeha Kung and Saibal Mukhopadhyay

11:40AM Neuromorphic System with Phase-Change Synapses for Pattern Learning and Feature Extraction [#231]

Stanislaw Wozniak, Angeliki Pantazi, Yusuf Leblebici and Evangelos Eleftheriou

12:00PM Flight Dynamics Modeling and Recognition using Finite State Machine for Automatic Insect Recognition [#816]

Kan Li and Jose Principe

Session mixture: Mixture models
Wednesday, May 17, 11:00AM-12:20PM, Room: Parallel 4 (Room #3+10+9), Chair: Weite Li

11:00AM Non-Local Information for a Mixture of Multiple Linear Classifiers [#149]

Weite Li, Peifeng Liang, Xin Yuan and Jinglu Hu

11:20AM A Mixture of Multiple Linear Classifiers with Sample Weight and Manifold Regularization [#552]

Weite Li, Benhui Chen, Bo Zhou and Jinglu Hu

11:40AM Generative Mixture of Networks [#704]

Ershad Banijamali, Ali Ghodsi and Pascal Poupart

12:00PM Generalized Mixture Representations and Combinations for Additive Fuzzy Systems [#935]

Bart Kosko

Session semisup: Semisupervised learning
Wednesday, May 17, 11:00AM-12:20PM, Room: Parallel 5 (Room #4+7+8), Chair: Alex Fedorov

11:00AM Truncated Variational EM for Semi-Supervised Neural Simpletrons [#682]

Dennis Forster and Jorg Lucke

11:20AM A Partial Labeling Framework for Multi-Class Imbalanced Streaming Data [#109]

Elaheh Arabmakki, Mehmed Kantardzic and Tegjyot Singh Sethi

11:40AM Zero-Shot Learning with a Partial Set of Observed Attributes [#377]

Yaqing Wang, James T. Kwok, Quanming Yao and Lionel M. Ni

12:00PM End-to-end learning of brain tissue segmentation from imperfect labeling [#877]

Alex Fedorov, Jeremy Johnson, Eswar Damaraju, Alexei Ozerin, Vince Calhoun and Sergey Plis

Session neuro: Computational neuroscience
Wednesday, May 17, 11:00AM-12:20PM, Room: Parallel 6 (Room #5+6), Chair: Mayank Vatsa

11:00AM Synaptic Efficacy Mosaics and the Impact of Morphology [#937]

Nicolangelo Iannella and Thomas Launey

11:20AM A Synaptic Plasticity Rule Providing a Unified Approach to Supervised and Unsupervised Learning. [#362]

Mikhail Kiselev

11:40AM Region-specific fMRI Dictionary for Decoding Face Verification in Humans [#840]

Daksha Yadav, Naman Kohli, Shruti Nagpal, Maneet Singh, Prateekshit Pandey, Mayank Vatsa, Richa Singh, Afzel Noore, Gokulraj Prabhakaran and Harsh Mahajan

12:00PM Neural Computation with Non-uniform Population Codes [#9]

Brian Fischer

Session Plen6: Plenary session 6: Christof Koch
Wednesday, May 17, 1:30PM-2:30PM, Room: La Perouse, Chair: Irwin King

1:30PM Big Science, Team Science, Open Science for Neuroscience

Christof Koch

Panel Session Panel3: INNS 30th anniversary
Wednesday, May 17, 2:50PM-4:30PM, Room: La Perouse, Chair: David Brown

Special Session S10+24: Cybersecurity Analytics
Wednesday, May 17, 2:50PM-4:30PM, Room: Parallel 1 (Cook), Chair: Catherine Huang; Hongmei He

2:50PM On the Robustness of Machine Learning Based Malware Detection Algorithms [#479]

Weiwei Hu and Ying Tan

3:10PM Empowering Convolutional Networks for Malware Classification and Analysis [#381]

Bojan Kolosnjaji, Ghadir Eraisha, George Webster, Apostolis Zarras and Claudia Eckert

3:30PM The Object Class Intrinsic Filter Conjecture [#258]

Michael Kounavis

3:50PM Autoencoder-based Feature Learning for Cyber Security Applications [#576]

Mahmood Yousefi-Azar, Vijay Varadharajan, Len Hamey and Uday Tupakula

4:10PM A New Semantic Attribute Deep Learning with a Linguistic Attribute Hierarchy for Spam Detection [#409]

Hongmei He, Tim Watson, Carsten Maple, Jorn Mehnen and Ashutosh Tiwari

Session clst1: Clustering 1
Wednesday, May 17, 2:50PM-4:30PM, Room: Parallel 2 (Room #1+13+14), Chair: Max Vladymyrov

2:50PM Fast, Accurate Spectral Clustering Using Locally Linear Landmarks [#148]

Max Vladymyrov and Miguel Carreira-Perpinan

3:10PM Trajectory Clustering via Deep Representation Learning [#181]

Yao Di, Zhang Chao, Zhu Zhihua, Huang Jianhui and Bi Jingping

3:30PM Mini-Batch Spectral Clustering [#190]

Han Yufei and Filippone Maurizio

3:50PM A Deep Learning Enabled Subspace Spectral Ensemble Clustering Approach for Web Anomaly Detection [#566]

Yuan Guiqin, Li Bo, Yao Yiyang and Zhang Simin

4:10PM A Spectral Clustering Approach for Online and Streaming Applications [#684]

Antonio Robles-Kelly and Ran Wei

Session hw: Neuromorphic engineering
Wednesday, May 17, 2:50PM-4:30PM, Room: Parallel 3 (Room #2+11+12), Chair: Rohit Shukla

2:50PM C. elegans Neuromorphic Neural Network Exhibiting Undulating Locomotion [#553]

Nikita Agarwal, Neil Mehta, Alice Parker and Karam Ashouri

3:10PM Quadratic Unconstrained Binary Optimization (QUBO) on Neuromorphic Computing System [#831]

Md Zahangir Alom, Brian Van Essen, Adam T. Moody, David Peter Widemann and Tarek M. Taha

3:30PM An FPGA Distributed Implementation Model for Embedded SOM with On-Line Learning [#444]

Miguel Angelo de Abreu Sousa and Emilio Del-Moral-Hernandez

3:50PM Evaluating Hopfield-network-based linear solvers for hardware constrained neural substrates [#852]

Rohit Shukla, Erik Jorgensen and Mikko Lipasti

4:10PM A Power-Efficient Biomimetic Intra-Branch Dendritic Adder [#249]

Pezhman Mamdouh and Alice Parker

Session ensemble: Ensemble learning
Wednesday, May 17, 2:50PM-4:30PM, Room: Parallel 4 (Room #3+10+9), Chair: Jeremiah Deng

2:50PM Sensitivity and Similarity Regularization in Dynamic Selection of Ensembles of Neural Networks [#57]

Babak Keshavarz-Hedayati and Nikitas Dimopoulos

3:10PM Video-Based Face Recognition Using Ensemble of Haar-Like Deep Convolutional Neural Networks [#699]

Mostafa Parchami, Saman Bashbaghi and Eric Granger

3:30PM A Multi-agent Metaheuristic Hybridization to the Automatic Design of Ensemble Systems [#786]

Antonino Feitosa Neto, Anne Canuto, Joao Carlos Xavier-Junior and Cephas Barreto

3:50PM A kernel-based ensemble classifier for evolving stream of trees with double concept drifting reaction [#873]

Valerio Grossi and Alessandro Sperduti

4:10PM A Streaming Ensemble Classifier with Multi-Class Imbalance Learning for Activity Recognition [#875]

Ahmad Shahi, Jeremiah Deng and Brendon Woodford

Session rl: Reinforcement learning
Wednesday, May 17, 2:50PM-4:30PM, Room: Parallel 5 (Room #4+7+8), Chair: Shalabh Bhatnagar

2:50PM Bounds for Off-policy Prediction in Reinforcement Learning [#365]

Ajin George Joseph and Shalabh Bhatnagar

3:10PM Training Neural Networks with Policy Gradient [#870]

Sourabh Bose and Manfred Huber

3:30PM Can A Reinforcement Learning Agent Practice Before It Starts Learning? [#457]

Minwoo Lee and Charles Anderson

3:50PM A Sandpile Model for Reliable Actor-Critic Reinforcement Learning [#518]

Yiming Peng, Gang Chen, Mengjie Zhang and Shaoning Pang

4:10PM Online Reinforcement with Exploration for Distributed Control [#637]

Vignesh Narayanan and Jagannathan Sarangapani

Session behav: Behavior analaysis
Wednesday, May 17, 2:50PM-4:30PM, Room: Parallel 6 (Room #5+6), Chair: Haibo He

2:50PM Dynamic Adaptation of User Migration Policies in Distributed Virtual Environments [#16]

David Vengerov

3:10PM Semi-wildlife gait patterns classification using Statistical Methods and Artificial Neural Networks [#669]

Daniel Gutierrez-Galan, Juan Pedro Dominguez-Morales, Lourdes Miro-Amarante, Francisco Gomez-Rodriguez, Manuel Jesus Dominguez-Morales, Manuel Rivas-Perez, Angel Jimenez-Fernandez and Alejandro Linares-Barranco

3:30PM Improving Point-based AIS Trajectory Classification with Partition-wise Gated Recurrent Units [#697]

Xiang Jiang, Xuan Liu, Erico N de Souza, Baifan Hu, Daniel L. Silver and Stan Matwin

3:50PM Pedestrian Detection with Dilated Convolution, Region Proposal Network and Boosted Decision Trees [#483]

Jiqian Li, Yan Wu, Junqiao Zhao, Linting Guan, Chen Ye and Tao Yang

4:10PM A Learning based Approach for Social Force Model Parameter Estimation [#533]

Zhiqiang Wan, Xuemin Hu, Haibo He and Yi Guo

Panel Session Panel4: New opportunities in neural network funding
Wednesday, May 17, 4:40PM-6:20PM, Room: La Perouse, Chair: Hava Siegelmann

Session security: Security and risk assessment
Wednesday, May 17, 4:40PM-6:20PM, Room: Parallel 1 (Cook), Chair: Tatiana Tambouratzis

4:40PM An Investigation of the Hoeffding Adaptive Tree for the Problem of Network Intrusion Detection [#587]

Diego Guarnieri Correa, Fabricio Enembreck and Carlos N. Silla Jr.

5:00PM Computational Intelligence Approach for Estimation of Vehicle Insurance Risk Level [#638]

Kristina Vassiljeva, Tepljakov Aleksei, Petlenkov Eduard and Netsajev Eduard

5:20PM A Compressive Multi-Kernel Method for Privacy-Preserving Machine Learning [#746]

Thee Chanyaswad, J. Morris Chang and S. Y. Kung

5:40PM How Systematic is the Environmental Sustainability Index 2002 as a Tool for Grouping Countries in Terms of Their Environmental Sustainability? [#658]

Tatiana Tambouratzis and Nikos Hatziethimiou

6:00PM Side-Channel Analysis and Machine Learning: A Practical Perspective [#702]

Stjepan Picek, Annelie Heuser, Alan Jovic, Simone Ludwing, Sylvain Guilley, Domagoj Jakobovic and Nele Mentens

Session clst2: Clustering 2
Wednesday, May 17, 4:40PM-6:20PM, Room: Parallel 2 (Room #1+13+14), Chair: Jeremie Sublime

4:40PM Signal-Based Autonomous Clustering for Relational Data [#664]

Parisa Rastin, Basarab Matei, Guenael Cabanes and Ibtissame El baghdadi

5:00PM Collaborative Clustering between Different Topological Partitions [#674]

Antoine Lachaud, Nistor Grozavu, Matei Basarab and Younes Bennani

5:20PM Integrating distance metric learning and cluster-level constraints in semi-supervised clustering [#718]

Bruno Nogueira, Yuri Tomas and Ricardo Marcacini

5:40PM Analysis of the influence of diversity in collaborative and multi-view clustering [#8]

Jeremie Sublime, Basarab Matei and Pierre-Alexandre Murena

6:00PM Improving Load Forecasting Based on Deep Learning and K-shape Clustering [#52]

Fateme Fahiman, Sarah M.Erfani, Sutharshan Rajasegarar, Marimuthu Palaniswami and Christopher Leckie

Session robot: Robotics
Wednesday, May 17, 4:40PM-6:20PM, Room: Parallel 3 (Room #2+11+12), Chair: Chelsea Sabo

4:40PM Transfer Learning of Shared Latent Spaces between Robots with Similar Kinematic Structure [#853]

Brian Delhaisse, Domingo Esteban, Leonel Rozo and Darwin Caldwell

5:00PM Learning Multisensory Neural Controllers for Robot Arm Tracking [#890]

Lakshitha Wijesinghe, Marco Antonelli, Jochen Triesch and Bertram Shi

5:20PM Multi-robot Cooperative Planning by Consensus Q-learning [#910]

Arup Kumar Sadhu, Amit Konar, Bonny Banerjee and Atulya K. Nagar

5:40PM Nonlinearly-Activated Noise-Tolerant Zeroing Neural Network for Distributed Motion Planning of Multiple Robot Arms [#436]

Long Jin, Shuai Li, Xin Luo and Ming-sheng Shang

6:00PM An Inexpensive Flying Robot Design for Embodied Robotics Research [#683]

Chelsea Sabo, Esin Yavuz, Alex Cope, Kevin Gurney, Eleni Vasilaki, Thomas Nowotny and James Marshall

Session img: Image analysis
Wednesday, May 17, 4:40PM-6:20PM, Room: Parallel 4 (Room #3+10+9), Chair: Alex Hocking

4:40PM Mining Hubble Space Telescope Images [#130]

Alex Hocking, Yi Sun, James Geach and Neil Davey

5:00PM Image Completion with Global Structure and Weighted Nuclear Norm Regularization [#200]

Mingli Zhang and Christian Desrosiers

5:20PM Two-dimensional Spectral Image Calibration Based on Feed-forward Neural Network [#333]

Mingze Li, Hasitieer Haerken, Fuqing Duan, Qian Yin, Xin Zheng and Ping Guo

5:40PM Genetic Algorithm-based Optimization of ELM for On-line Hyperspectral Image Classification [#595]

Javier Echanobe, Ines Del Campo, Koldo Basterretxea and Victoria Martinez

6:00PM Restricted Exhaustive Search for Frequency Band Selection in Motor Imagery Classification [#756]

Paul Bustios and Joao Rosa

Session rl-ctrl: Reinforcement learning and control
Wednesday, May 17, 4:40PM-6:20PM, Room: Parallel 5 (Room #4+7+8), Chair: Stephen Piche

4:40PM Batch Reinforcement Learning on the Industrial Benchmark: First Experiences [#608]

Daniel Hein, Steffen Udluft, Michel Tokic, Alexander Hentschel, Thomas Runkler and Volkmar Sterzing

5:00PM Time Delays in a HyperNEAT Network to Improve Gait Learning for Legged Robots [#507]

Oscar Silva, Pascal Sigel and Maria-Jose Escobar

5:20PM Robust Optimal Control for Time-Delay Systems with Dynamic Uncertainties via ADP [#554]

Lu Dong, Jun Li, Wankou Yang and Changyin Sun

5:40PM Active disturbance rejection control based on differential neural networks [#19]

Ivan Salgado, Manuel Mera and Isaac Chairez

6:00PM Gain Confidence of a Neural Network used for Model Based Control [#232]

Steve Piche and Jason Grimm

Session pred: Prediction and forecasting
Wednesday, May 17, 4:40PM-6:20PM, Room: Parallel 6 (Room #5+6), Chair: Filippo Maria Bianchi

4:40PM Cellular Computational Generalized Neuron Network with Cooperative PSO for Power Systems [#721]

Md Rahman, Yawei Wei and Ganesh Venayagamoorthy

5:00PM Solar Power Prediction Using Weather Type Pair Patterns [#748]

Zheng Wang, Irena Koprinska and Mashud Rana

5:20PM Local Short Term Electricity Load Forecasting: Automatic Approaches [#758]

The-Hien Dang-Ha, Filippo Bianchi and Roland Olsson

5:40PM Temporal Overdrive Recurrent Neural Network [#386]

Filippo Maria Bianchi, Michael Kampffmeyer, Enrico Maiorino and Robert Jenssen

6:00PM Monthly Energy Consumption Forecast: A Deep Learning Approach [#207]

Rodrigo Berriel, Andre Teixeira Lopes, Alexandre Rodrigues, Flavio Miguel Varejao and Thiago Oliveira-Santos

Special Track Banquet: Banquet and Award Ceremony
Wednesday, May 17, 7:00PM-9:00PM, Room: Arteaga, Chair: Chrisina Jayne
Session Plen7: Plenary session 7: Odest Chadwicke Jenkins
Thursday, May 18, 8:00AM-9:00AM, Room: La Perouse, Chair: Yoonsuck Choe

8:00AM Perception of People and Scenes for Robot Learning from Demonstration

Odest Chadwicke Jenkins

Session self-org: Self-organization
Thursday, May 18, 9:20AM-10:40AM, Room: Parallel 1 (Cook), Chair: Ricardo Cerri

9:20AM A Self-Organizing Map-based Method for Multi-Label Classification [#427]

Gustavo Giordano Colombini, Iuri Bonna Mauricio Abreu and Ricardo Cerri

9:40AM From CPU to FPGA - Acceleration of Self-Organizing Maps for Data Mining [#475]

Jan Lachmair, Thomas Mieth, Rene Griessl, Jens Hagemeyer and Mario Porrmann

10:00AM Adaptive Density Estimation Based on Self-Organizing Incremental Neural Network using Gaussian Process [#772]

Xiaoyu Wang and Osamu Hasegawa

10:20AM Self-Organising Temporal Pooling [#888]

Daniel Slack, Brendan McCane and Alistair Knott

Special Session S17: Intelligent vehicle and transport systems
Thursday, May 18, 9:20AM-10:40AM, Room: Parallel 2 (Room #1+13+14), Chair: Yi Murphy

9:20AM Neural-Based Model Predictive Control for Tackling Steering Delays of Autonomous Cars [#227]

Ranik Guidolini, Alberto F. De Souza, Filipe Mutz and Claudine Badue

9:40AM Following the Leader using a Tracking System based on Pre-trained Deep Neural Networks [#825]

Filipe Mutz, Vinicius Cardoso, Thomas Teixeira, Luan F. R. Jesus, Michael A. Golcalves, Ranik Guidolini, Josias Oliveira, Claudine Badue and Alberto F. De Souza

10:00AM Unsupervised Learning for Surveillance Planning with Team of Aerial Vehicles [#732]

Jan Faigl and Petr Vana

10:20AM Long-Range Navigation by Path Integration and Decoding of Grid Cells in a Neural Network [#710]

Vegard Edvardsen

Session att: Attention and emotion
Thursday, May 18, 9:20AM-10:40AM, Room: Parallel 3 (Room #2+11+12), Chair: Soheil Keshmiri

9:20AM Designing an Adaptive Attention Mechanism for Relation Classification [#45]

Pengda Qin, Weiran Xu and Jun Guo

9:40AM Classification of Radiology Reports Using Neural Attention Models [#700]

Bonggun Shin, Falgun H. Chokshi, Timothy Lee and Jinho D. Choi

10:00AM Emotional State Estimation Using a Modified Gradient-Based Neural Architecture with Weighted Estimates [#112]

Soheil Keshmiri, Hidenobu Sumioka, Junya Nakanishi and Hiroshi Ishiguro

10:20AM Typicality effect on N400 ERP in categories despite differences in semantic processing [#300]

Mansoureh Fahimi Hnazaee and Marc Van Hulle

Session med: Medical and health applications
Thursday, May 18, 9:20AM-10:40AM, Room: Parallel 4 (Room #3+10+9), Chair: Danilo Mandic

9:20AM Complexity science for sleep stage classification from EEG [#487]

Takashi Nakamura, Tricia Adjei, Yousef Alqurashi, David Looney, Mary Morrell and Danilo Mandic

9:40AM Temporal-Specific Roles of Fractality in EEG Signal of Alzheimer's Disease [#544]

Sou Nobukawa, Teruya Yamanishi, Haruhiko Nishimura, Yuji Wada, Mitsuru Kikuchi and Tetsuya Takahashi

10:00AM Robust Greedy Deep Dictionary Learning for ECG Arrhythmia Classification [#18]

Majumdar Angshul and Ward Rabab

10:20AM Investigating the Effects of Class Imbalance in Learning the Claim Authorization Process in the Brazilian Health Care Market [#614]

Jackson Cassimiro, Andre Santana, Pedro Santos Neto and Ricardo Rabelo

Session scene: Scene analysis
Thursday, May 18, 9:20AM-10:40AM, Room: Parallel 5 (Room #4+7+8), Chair: Clive Cheong Took

9:20AM On Making Sense of Neural Networks in Road Analysis [#175]

Daniel Morris, Andreas Antoniades and Clive Cheong Took

9:40AM Grassmann Matching Kernels for Scene Representation and Recognition [#477]

Bisser Raytchev, Miku Koujiba, Toru Tamaki and Kazufumi Kaneda

10:00AM 3D CNN Based Phantom Object Removing from Mobile Laser Scanning Data [#653]

Balazs Nagy and Csaba Benedek

10:20AM Comparison of Semantic Segmentation Approaches for Horizon/Sky Line Detection [#741]

Touqeer Ahmad, Pavel Campr, Martin Cadik and George Bebis

Session rnn: Recurrent neural networks
Thursday, May 18, 9:20AM-10:40AM, Room: Parallel 6 (Room #5+6), Chair: Stefan Oehmcke

9:20AM Convolving over Time via Recurrent Connections for Sequential Weight Sharing in Neural Networks [#691]

Jason Allred and Kaushik Roy

9:40AM Different-Level Simultaneous Minimization Scheme for Fault Tolerance of Redundant Manipulator Aided with Discrete-Time Recurrent Neural Network [#441]

Mei Liu, Xiaogang Yan, Dongsheng Guo, Lin Xiao, Bolin Liao and Long Jin

10:00AM Compressing Recurrent Neural Network with Tensor Train [#579]

Andros Tjandra, Sakriani Sakti and Satoshi Nakamura

10:20AM Recurrent Neural Networks and Exponential PAA for Virtual Marine Sensors [#656]

Stefan Oehmcke, Oliver Zielinski and Oliver Kramer

Session dyn: Neurodynamics
Thursday, May 18, 11:00AM-12:20PM, Room: Parallel 1 (Cook), Chair: Isaac Chairez

11:00AM Global Asymptotic Stability for Matrix-Valued Recurrent Neural Networks with Time Delays [#79]

Calin-Adrian Popa

11:20AM Connection Sparsity versus Orbit Stability in Dynamic Binary Neural Networks [#445]

Ryuji Sato, Shunsuke Aoki and Toshimichi Saito

11:40AM A novel gene network model based on nonlinear dynamics of asynchronous cellular automaton [#924]

Ryota Araki, Hiroyuki Torikai and Takuya Yoshimoto

12:00PM Two-layer dynamic neural field learning law based on controlled Lyapunov functions [#500]

Jorge-Luis Garcia, Ivan Salgado and Isaac Chairez

Special Session S22: Machine learning methods applied to medicine
Thursday, May 18, 11:00AM-12:20PM, Room: Parallel 2 (Room #1+13+14), Chair: Veronica Bolon-Canedo

11:00AM Supervised Context-Aware Non-Negative Matrix Factorization to Handle High-Dimensional High-Correlated Imbalanced Biomedical Data [#273]

Ali Braytee, Wei Liu and Paul Kennedy

11:20AM Objective Quality Assessment of Retinal Images Based on Texture Features [#221]

Beatriz Remeseiro, Ana Maria Mendonca and Aurelio Campilho

11:40AM Analysis and Optimization of the 13C Octanoic Acid Breath Test [#707]

Vitoantonio Bevilacqua, Marco Riezzo, Antonio Brunetti, Francesco Russo, Benedetta D'Attoma and Giuseppe Riezzo

12:00PM The Fused Lasso Penalty for Learning Interpretable Medical Scoring Systems [#213]

Nataliya Sokolovska, Yann Chevaleyre, Karine Clement and Jean-Daniel Zucker

Session brain: Brain imaging and analysis
Thursday, May 18, 11:00AM-12:20PM, Room: Parallel 3 (Room #2+11+12), Chair: Vasiliki-Maria Katsageorgiou

11:00AM MiPAL: Multiple-instance Passive Aggressive Learning for Identification of Attention Deficit Hyperactive Disorder from fMRI [#714]

K.V.D.J.Prabhash Kumarasinghe, Suresh Sundaram and Subbaraju Vigneshwaran

11:20AM Data-driven Study of Mouse Sleep-stages using Restricted Boltzmann Machines [#596]

Vasiliki-Maria Katsageorgiou, Matteo Zanotto, Valter Tucci, Vittorio Murino and Diego Sona

11:40AM Performance Analysis and Benchmarking of All-Spin Spiking Neural Networks [#846]

Abhronil Sengupta, Aayush Ankit and Kaushik Roy

12:00PM Metastability of Cortical BOLD Signals in Maturation and Senescence [#634]

Shruti Naik, Subbareddy Oota, Arpan Banerjee, Dipanjan Roy and Raju S. Bapi

Session health: Health applications
Thursday, May 18, 11:00AM-12:20PM, Room: Parallel 4 (Room #3+10+9), Chair: Raka Jovanovic

11:00AM Localized Sampling for Hospital Re-admission Prediction with Imbalanced Sample Distributions [#828]

Xingquan Zhu, Jose Hurtado and Haicheng Tao

11:20AM An Algorithm for Automated Segmentation for Bleeding Detection in Endoscopic Images [#868]

Eva Tuba, Milan Tuba and Raka Jovanovic

11:40AM A Method for Intelligent Support to Medical Diagnosis in Emergency Cardiac Care [#624]

Luis Alberto Souto Maior Neto, Robson Pequeno de Sousa, Carlos de Almeida, Katia Galdino, Fabricia Martins Silva and Antonio Venancio de Moura Lacerda Filho

12:00PM Latent Topic Ensemble Learning for Hospital Readmission Cost Reduction [#717]

Christopher Baechle, Ankur Agarwal, Ravi Behara and Xingquan Zhu

Session feature: Feature selection
Thursday, May 18, 11:00AM-12:20PM, Room: Parallel 5 (Room #4+7+8), Chair: Ali Minai

11:00AM Feature Selection using Multiple Auto-Encoders [#755]

Xinyu Guo, Ali Minai and Long Lu

11:20AM A Fast Information-Theoretic Approximation of Joint Mutual Information Feature Selection [#817]

Heng Liu and Gregory Ditzler

11:40AM Multi-label Feature Selection Algorithm Based on Label Pairwise Ranking Comparison Transformation [#105]

Haotian Xu and Lingyu Xu

12:00PM Early Stabilizing Feature Importance for TensorFlow Deep Neural Networks [#110]

Jeff Heaton, Steven McElwee, James Cannady and James Fraley

Session sync: Circuits and synchrony
Thursday, May 18, 11:00AM-12:20PM, Room: Parallel 6 (Room #5+6), Chair: Jeremie Cabessa

11:00AM Compositional Neural-Network Modeling of Complex Analog Circuits [#420]

Ramin M. Hasani, Dieter Haerle, Christian F. Baumgartner, Alessio R. Lomuscio and Radu Grosu

11:20AM Spatio-Temporal Pattern Recognition in Neural Circuits with Memory-Transistor-Driven Memristive Synapses [#466]

Kurtis Cantley, Robert Ivans, Anand Subramaniam and Eric Vogel

11:40AM Emulation of Finite State Automata with Networks of Synfire Rings [#301]

Jeremie Cabessa and Paolo Masulli

12:00PM Vibrated Synchronization Features Neural Network [#591]

Kakemoto Yoshitsugu and Nakasuka Shinichi

Workshop WS2a: Workshop 2: Deep Learning for Music
Thursday, May 18, 1:30PM-6:30PM, Room: Parallel 2 (Room #1+13+14), Chair: Dorien Herremans; Ching-Hua Chuan

Workshop WS3: Workshop 3: Computational Aspects of Pattern Recognition and Computer Vision with Neural Systems
Thursday, May 18, 1:30PM-6:30PM, Room: Parallel 3 (Room #2+11+12), Chair: Boguslaw Cyganek; Michal Wozniak

Workshop WS4: Workshop 4: Canceled
Thursday, May 18, 1:30PM-6:30PM, Room: Parallel 4 (Room #3+10+9), Chair: Canceled

Workshop WS5a: Workshop 5: Machine Learning for Large-Scale Networks
Thursday, May 18, 1:30PM-6:30PM, Room: Parallel 5 (Room #4+7+8), Chair: Izabela Moise; Nino Antulov-Fantulin

Workshop WS6: Workshop 6: Advances in Learning from/with Multiple Learners (ALML)
Thursday, May 18, 1:30PM-6:30PM, Room: Parallel 6 (Room #5+6), Chair: Matei Basarab; Younes Bennani, Guenael Cabanes, Nistor Grozavu; Nicoleta Rogovschi; Jeremie Sublime

Workshop WS1: Workshop 1: Developmental Plasticity and Evolutionary Robotics
Friday, May 19, 9:00AM-12:20PM, Room: Parallel 1 (Cook), Chair: Angel P. del Pobil and Fumiya Iida

Workshop WS2b: Workshop 2: Deep Learning for Music
Friday, May 19, 9:00AM-12:20PM, Room: Parallel 2 (Room #1+13+14), Chair: Dorien Herremans; Ching-Hua Chuan

Workshop WS5b: Workshop 5: Machine Learning for Large-Scale Networks
Friday, May 19, 9:00AM-12:20PM, Room: Parallel 5 (Room #4+7+8), Chair: Izabela Moise; Nino Antulov-Fantulin

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