



Editorial

SI: ICONIP 2015: Learning algorithms and classification systems



List of Accepted Papers (SI: ICONIP 2015)

1. Yuto Takizawa; Fang Shang, Akira Hirose:
Adaptive land classification and new class generation by unsupervised double-stage learning in Poincare sphere space for polarimetric synthetic aperture radars
2. Diego P Mesquita; joao pordeus gomes, Amauri Souza Junior; Juvenio Nobre:
Euclidean Distance Estimation in Incomplete Datasets
3. Ryuji Sato; Toshimichi Saito:
Stabilization of Desired Periodic Orbits in Dynamic Binary Neural Networks
4. Afaf Tareef; Yang Song, Heng Huang, Yue Wang, Dagan Feng, Mei Chen, Weidong Cai:
Optimizing the Cervix Cytological Examination based on Deep Learning and Dynamic Shape Modelling
5. Victor Parque, Tomoyuki Miyashita:
A Method to Learn High-Performing and Novel Product Layouts and its Application to Vehicle Design
6. Carlos Vivaracho-Pascual, Arancha Simon Hurtado; Esperanza Manso-Martinez:
Using the Score Ratio with Distance-Based Classifiers: A Theoretical and Practical Study in Biometric Signature Recognition
7. Lee Suk Kim, Han Bin Bae, Rhee Man Kil, Churl Hee Jo:
Classification of the Trained and Untrained Emitter Types Based on Class Probability Output Networks
8. Yasutaka Furusho; Takatomi Kubo, Kazushi Ikeda:
Roles of Pre-training in Deep Neural Networks from Information Theoretical Perspective
9. Kitsuchart Pasupa, Sandor Szedmak:
Utilising Kronecker Decomposition and Tensor-based Multi-view Learning to Predict Where People are Looking in Images
10. Mohamed IBN KHEDHER, Mounim A. El-Yacoubi; Bernadette Dorizzi:
Fusion of Appearance and Motion-based Sparse Representations for Multi-shot Person Re-identification
11. Yasemin Poyraz Kocak; Selcuk Sevgen:
Detecting and Counting People Using Real-Time Directional Algorithms Implemented by Compute Unified Device Architecture
12. Mutsumi Kimura; Ryohei Morita; Sumio Sugisaki; Tokiyoshi Matsuda; Tomoya Kameda; Yasuhiko Nakashima:
Cellular Neural Network formed by Simplified Processing Elements composed of Thin-Film Transistors
13. Mubasher Baig; Mian Muhammad Awais; El Sayed M El Alfy:
AdaBoost Based Artificial Neural Network Learning

It has been over 22 years since the first International Conference on Neural Information Processing (ICONIP) held in Seoul, Korea in 1984. ICONIP 2015 was held in Istanbul, Turkey. It is an annual event organized by the Asia Pacific Neural Network Society (APNNS). The aim of ICONIP is to bring together scientists, practitioners, and students worldwide, especially from the Asia-Pacific region, to discuss the challenges and trends in the field of neural information processing. This special issue on “Learning Algorithms and Classification Systems” aims at disseminating the latest developments in neural information processing. We are pleased to have different scholars from different regions in Asia-Pacific to contribute to this special issue. Eventually, 13 papers are included in this issue.

- (1) “Adaptive land classification and new class generation by unsupervised double-stage learning in Poincare sphere space for polarimetric synthetic aperture radars” studies an unsupervised double-stage learning land state classification system using a self-organizing map (SOM) that utilizes ensemble variation vectors.
- (2) “Euclidean Distance Estimation in Incomplete Datasets” proposes a method to estimate the expected value of the Euclidean distance between two possibly incomplete feature vectors.
- (3) “Stabilization of Desired Periodic Orbits in Dynamic Binary Neural Networks” presents a simple evolutionary algorithm in order to stabilize a desired binary periodic orbit for dynamic binary neural networks
- (4) “Optimizing the Cervix Cytological Examination based on Deep Learning and Dynamic Shape Modelling” presents a robust variational segmentation framework based on superpixelwise convolutional neural network and a learned shape prior enabling an accurate analysis of overlapping cervical mass.
- (5) “A Method to Learn High-Performing and Novel Product Layouts and its Application to Vehicle Design” propose a new approach to search for novel and high-performing product designs by optimizing not only a proposed novelty metric, but also a performance function which is learned from historical data.
- (6) “Using the Score Ratio with Distance-Based Classifiers: A Theoretical and Practical Study in Biometric Signature Recognition” exploits the likelihood ratio and proposes a basic score ratio approach and successfully tests with three different state-of-the-art biometric signature systems based on distance classifiers.

- (7) “Classification of the Trained and Untrained Emitter Types Based on Class Probability Output Networks” proposes a method of classifying the radar patterns automatically using the network of calculating the p-values for testing the hypotheses of the types of emitters referred to as the class probability output network (CPON).
- (8) “Roles of Pre-training in Deep Neural Networks from Information Theoretical Perspective” analyzes the representations in the hidden layers of deep neural networks from the information theoretical viewpoint calculates the mutual information and the conditional entropy in each of the hidden layers when deep neural networks were pre-trained with SAE or DBN, or not trained and found that the entropies of the representations of the data and their labels remain high in the early layers and decrease in the late layers, while the mutual information between the representations and the labels decreases in the earlier layers.
- (9) “Utilising Kronecker Decomposition and Tensor-based Multi-view Learning to Predict Where People are Looking in Images” proposes an algorithm called “Tensor-based Multi-View Learning” (TMVL) to solve a generalized regression problem.
- (10) “Fusion of Appearance and Motion-based Sparse Representations for Multi-shot Person Re-identification” presents a multi-shot human re-identification system from video sequences based on interest points (IPs) matching.
- (11) “Detecting and Counting People Using Real-Time Directional Algorithms Implemented by Compute Unified Device Architecture” implements a real-time and directional counting algorithm using the Graphic Processing Unit (GPU) Programming for the purpose of detecting and counting people.
- (12) “Cellular Neural Network formed by Simplified Processing Elements composed of Thin-Film Transistors” develops a

cellular neural network formed by simplified processing elements composed of thin-film transistors, which simplifies the neuron circuit into a two-inverter two-switch circuit and the synapse device into only a transistor.

- (13) “AdaBoost Based Artificial Neural Network Learning” presents a boosting-based method of learning a feed-forward artificial neural network (ANN) with a single layer of hidden neurons and a single output neuron, which enables to learn the weights of a neural network with a single hidden layer of linear neurons.

Here, we would like to thank the authors of this special issue for contributing to this special issue. Finally, we would like to thank the anonymous referees for making this special issue in a better shape.

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