

## **EDITORIAL**

This special issue encompasses six papers that present contemporary methods for building adaptive information systems for decision support, control, and signal processing. Most of the proposed methods and systems are based on the paradigm of evolving connectionist systems (ECOS) that further extends the classical knowledge based systems. ECOS evolve their structure and functionality in time through learning from multiple streams of data and through interaction with the environment.

The first paper, authored by A. Ghobakhlou and N. Kasabov introduces a methodology of using ECOS for adaptive and integrated speech and image processing with some possible applications. The proposed method allows for the creation and the on-line adaptation of systems that learn to recognize image and speech signals in their separation or integration and adapt to different conditions (e.g. noise), always adding new classes (e.g. images, words, persons records) to their structures.

The paper by L. Huang, S. Ge and T. Lee from Singapore presents a novel method for adaptive robot control.

The third paper – by G. Ng et al, presents analysis on using one ECOS model - evolving fuzzy neural networks (EFuNN) for handwritten character recognition when different feature sets are explored. The conclusion is that EFuNN-based systems are efficient for handwritten character recognition and they can also be used to extract proper features for the task

The paper by S. Soltic et al presents a novel application of ECOS models, namely Evolving Classification Function (ECF), and Dynamic Evolving Neuro-Fuzzy Inference System (DENFIS) for predicting the establishment of pest insects in a geographical region defined by its environmental variables. A world-wide data and mapping is used for the study.

The paper on context image mapping with the use of self-organising maps (SOM) and evolving SOMs – ESOM, by D. Deng, presents an interesting approach where images can be automatically grouped into a topological map based on their context.

The last paper, by S. Pang is a theoretical study on Bayesian networks in terms of some features that can be used to capture relationships from data and make new discoveries.

Sincerely,

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