Neurocomputation as Brain Inspired Informatics: Methods, Systems, Applications

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Neuromputation is concerned with methods, systems and applications inspired by the principles of information processing in the brain. The talk presents a brief overview of methods of neurocomputation, including: traditional neural networks; evolving connections systems (ECOS) and evolving neuro-fuzzy systems [1]; spiking neural networks (SNN) [2-5]; evolutionary and neurogenetic systems [6]; quantum inspired evolutionary computation [7,8]; rule extraction from SNN [9]. These methods are suitable for incremental adaptive, on-line learning. They are illustrated on spatio-temporal pattern recognition problems such as: EEG pattern recognition; brain-computer interfaces [10]; ecological and environmental modeling [11]. Future directions are discussed. Materials related to the lecture, such as papers, data and software systems can be found from www.kedri.aut.ac.nz and also from: www.theneucom.com and http://ncs.ethz.ch/projects/evospike/.

References

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