Complexity

Special Issue on

Bioinspired and Evolutionary Computation Approaches towards Coping with Complexity in Human Machine Interaction

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CALL FOR PAPERS

Intelligent systems for human-robot interaction are not only expected to automatically acquire and manage knowledge through a variety of sensors but also expected to learn, adapt, and optimize their behaviour over time. Motivated by exciting and successful advances, biologically inspired models are becoming the choice in machine learning and computational intelligence to solve complex problems in a variety of applications. It goes from extraction of middle- and high-level abstract features, recognition tasks, optimization problems, and more. This Special Issue will focus attention on approaches based on complex adaptive systems in nature such as artificial neural networks; evolutionary algorithms; game theory; adaptive programming; and chaos theory towards coping with complexity in Human-Machine Interaction (HMI). Examples include human behaviour, emotional state, and other biosignals analysis and recognition, which can be used to learn and monitor normal and anomalous actions/activities and also health related issues (e.g., physical and emotional problems during human-machine interaction). Automated human behaviour and emotional state analysis has been, and still remains, a challenging problem in socially assistive robotics.

Thus, this Special Issue aims to attract high quality original research articles related to how biologically inspired methods and evolutionary computation can help coping with complexity in HMI-based applications, such as health care, surveillance, and Human-Robot Interaction (HRI). Novel and innovative contributions including reviews related to bioinspired and adaptive approaches are also welcome.

Potential topics include but are not limited to the following:

► Complex adaptive systems for Human-Machine Interaction (HMI) applications

► Complex evolutionary computation for behaviour analysis/recognition

► Bioinspired approaches for complex human activity recognition

► Bioinspired approaches for socially assistive robotics in complex scenarios

► Deep learning for advanced affective computing

► Bioinspired approaches for Brain Computer Interfaces (BCI) and complex biosignal processing

► Biologically inspired methods for artificial perception in Human-Robot Interaction (HRI) in complex environments

Authors can submit their manuscripts through the Manuscript Tracking System at https://mts.hindawi.com/submit/journals/complexity/beca/.

Papers are published upon acceptance, regardless of the Special Issue publication date.

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