Smart Innovation, Systems and Technologies 19

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Neural Nets and Surroundings

22nd Italian Workshop on Neural Nets,
WIRN 2012, May 17–19, Vietri sul Mare,
Salerno, Italy

Springer

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Preface

This volume collects a selection of contributions which has been presented at the 22nd Italian Workshop on Neural Networks, the yearly meeting of the Italian Society for Neural Networks (SIREN). The conference was held in Italy, Vietri sul Mare (Salerno), during May 17–19, 2012. The annual meeting of SIREN is sponsored by International Neural Network Society (INNS), European Neural Network Society (ENNS) and IEEE Computational Intelligence Society (CIS).

The workshop, and thus this book, is organized in three main components, two special sessions and a group of regular sessions featuring different aspects and point of views of artificial neural networks and natural intelligence, also including applications of present compelling interest.

More than 60 papers were presented at the Workshop, and most of them are reported here. The review process has been carried out in two steps, one before and one after the workshop in order to meet Publisher's requirements. The selection of the papers was made through peer-review process, where each submission was evaluated by at least two reviewers. The submitted papers were authored by peer scholars from different countries (the Italian component was anyway preponderant). The acceptance rate is thus high also because most of the attendees are involved in SIREN research and organization activities for more than 20 years. In addition to regular papers, the technical program featured keynote plenary lectures by some worldwide renowned scientist (Soo Young Lee, South Korea; Ganesh K. Venayagamoorthy, USA; Jacek Zurada, USA; Günther Palm, Germany; Alessandro Vinciarelli, UK; Danilo Mandic, UK). One of the two special sessions was supported by the EU-sponsored COST Action 2102 that closed his work on February 2011 even though the Members of the Action are still networking and collaborating in scientific activities.

The first Special Session explored the new frontiers and challenges in Smart Grid research and proposed a proficient discussion table for scientists joining the WIRN conference, whose expertise typically cover the research fields addressed in Smart Grid technology, as electrical and electronic engineering, computational intelligence, digital signal processing and telecommunications. The Session included two invited contributions and seven regular ones. The Session was particularly relevant because it introduced

some aspects of neural network applications not commonly known at the community in a field of growing interest.

The second Special Session was titled Computational Intelligence in Emotional or Affective Systems and was given in honour of John Taylor, the Editor-in-chief of the journal Neural Networks recently died. The Session featured two keynote lectures and 10 regular contributions. Computational Intelligence (CI) methods have shown great capabilities in modelling, prediction, and recognition tasks and a mature degree of understanding has been achieved in many application areas, in particular in complex multimodal systems supporting human-machine or human-human interaction. At the same time, the emotional issue has recently gained increasing attention in such complex systems due to its relevance in most common human tasks (like cognitive processes, perception, learning, communication and even "rational" decision-making) and therefore is highly relevant for the goal of human-like interaction with machines. The real challenge is taking advantage of the emotional characterization of humans to make the computer interfacing with them more natural and therefore useful. The scope of the session was to assess to what extent and how sophisticated computational intelligence tools developed so far might support the multidisciplinary research on the characterization of an appropriate system reaction to human emotions and expression in interactive scenarios.

We would like to thank all of the special sessions organizers, namely: Stefano Squartini, Rosario Carbone, Michele Scarpiniti, Francesco Piazza, Aurelio Uncini, Anna Esposito, Günther Palm.

The organization of an International Conference gathers for the efforts of several people involved. We would like to express our gratitude to everyone that has cooperate to the organization, by offering their commitment, energy and spare time to make this event a successful one.

May 2012

Bruno Apolloni
Simone Bassis
Anna Esposito
Francesco Carlo Morabito

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WIRN 2012 is organized by the Italian Society of Neural Networks (SIREN) in co-operation with the International Institute for Advanced Scientific Studies (IIASS) of Vietri S/M (Italy).

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