2010 IEEE WORLD CONGRESS ON COMPUTATIONAL INTELLIGENCE
JULY 18-23, 2010, BARCELONA, SPAIN
Barcelona International Convention Centre (CCIB)

Special Session on
Computational Intelligence and Cyberinfrastructure for Complex System Modelling and Knowledge Discovery in Medical Informatics and e-Health

Submission Deadline: January 31, 2010

The rapid advances of information technology in medical and health sciences have led to a big explosion of the amount of health data collected. These large and complex health datasets, especially longitudinal ones, present big methodological challenges in terms of measurement, data quality and statistical analysis. There have been constant struggles for medical researchers, doctors, nurses, computer scientists and statisticians to manage, improve access and make use of these datasets. For example, e-health researchers have made great efforts to perform data linkage of relevant and disparate health, socio-economic resources.

On the other hand, the huge amount of health datasets also provide opportunities for identifying and exploring new areas in medical/health sciences. The large health datasets generated by many organizations are precious strategic resources. Now making use of these strategic resources will inevitably lead to improving the qualities of public health and health decisions. Major breakthroughs will contribute significantly to improving health status.

Computational intelligence including artificial neural networks, fuzzy logics, evolutionary computing, and other emerging techniques like particle swarm optimisation, becomes attractive for achieving this ambitious objective. Advances in computational intelligence research and technology have made it possible to solve many interesting problems in medical diagnostics and healthcare based on the available large and complex data sets.

The main aim of this Special Session is to bring together researchers and practitioners building e-health infrastructures and developing computational intelligence techniques for medical informatics and e-health decision making. The special session is intended to establish new trends in this field and to encourage cooperation among the participants.

Topics include, but are not limited by:

- Computational intelligence in diagnosing medical diseases.
- Computational intelligence in modelling patient care and resources within a healthcare system.
- Intelligent multi-level intervention models for health and well-being of children and young people.
- E-health data linkage.
- Computational intelligence in clinical rule knowledge induction.
- Computational intelligence applied to privacy and confidentiality preserving for health related user models.

- Health knowledge management.
- Intelligent clinical decision supports.
- Computational intelligence methods for imputing missing values of medical datasets.
- Personalization and adaptation of e-Health information systems (including adaptive content, search and interface).
- Ontologies for user models for tailored health care delivery.
- Mining medical data with time- and context-changing patterns and data distributions.
- Computational intelligence in health data streams and longitudinal data analysis.
- Medical knowledge elicitation and representation.

Important Dates

Paper Submission:	**January 31, 2010**
Notification of Acceptance:	March 15, 2010
Final Paper Submission:	May 2, 2010

Paper Submission

Full manuscripts should be prepared according to the standards specified in the WCCI 2010. For paper format and length, please see the **Instructions for Authors** at http://www.wcci2010.org/submission .

Please submit the papers via the 2010 WCCI submission page at http://www.wcci2010.org/submission . Please make sure that you select

- **Main research topic,** then **SPECIAL SESSIONS**, then pick **Computational Intelligence and Cyberinfrastructure for Complex System Modelling and Knowledge Discovery in Medical Informatics and e-Health**

All special session papers will be treated in the same way as regular papers. The conference proceedings of WCCI have been continuously included in the **EI Compendex Database** and **IEEE Xplore**.

2010 WCCI is the largest technical event in the field. It includes three flagship international conferences sponsored by the IEEE Computational Intelligence Society: **2010 IEEE International Conference on Fuzzy Systems** (FUZZ-IEEE), **2010 IEEE Joint International Conference on Neural Networks** (IJCNN), and **2010 IEEE International Congress on Evolutionary Computation** (CEC).

Special Session Organizers

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