

Call for Papers: WCCI 2016 Special Session on Computational Intelligence in Ecological Informatics and Environmental Modelling

Aim

Ecological informatics and the related field of ecological modelling involve constructing computational models of ecological systems. Environmental modelling is closely related and involves constructing models of the physical environment that biological eco-systems inhabit. The amount of data describing global and local environments and the eco-systems that inhabit them is rapidly increasing. As these are highly-complex systems, algorithms from the field of computational intelligence have already been widely applied to modelling this data. The aim of this special session is to provide a forum for recent research in the application of computational intelligence in the areas of ecological informatics, ecological modelling and environmental modelling. This is a highly topical area and is open to a broad array of methods from the field of computational intelligence.

Scope

The scope of the special session includes, but is not limited to, the following topics:

- Species distribution and ecological niche modelling
- Predicting species abundance
- Remote sensing image analysis and content-based image retrieval for Ecological Informatics and Environmental Modelling
- Analysis of species assemblages
- Classification of species
- Environmental impact assessment
- Modelling of environmental events including floods
- Issues in the preparation of ecological data for modelling
- Modelling of pollutants or contamination in air, land or water
- Modelling water quality
- Greenhouse gas emissions modelling and the effects of climate change
- Modelling the future development of populations
- Detecting landscape features
- Modelling water drainage systems
- Assessment of habitat quality
- Forecasting of algal blooms
- Habitat suitability modelling
- Predicting crop hazards, pests or diseases
- Modelling interactions between multiple species
- Identifying landscape features
- Modelling ecosystem biomass
- Learning of phenological patterns

Important Dates

- Paper submission deadline: 15th January 2016
- Author notification: 15th March 2016
- Deadline for final manuscript: 15th April 2016
- Early registration deadline: 15th April 2016
- Conference dates: 25th July – 29th July 2016

Paper Submission

As this is a cross-disciplinary special session, please submit papers via the IEEE CEC 2016 submission site: <http://iee-cis.org/conferences/cec2016/upload.php>

Please make sure you select “Computational Intelligence in Ecological Informatics and Environmental Modelling” under “Cross-Disciplinary and CI Applications Special Sessions” as the Main Research Topic of your submission. Accepted papers will be published in the conference proceedings that are most appropriate for the paper (IJCNN, FUZZ-IEEE or CEC). This decision will be made by the Special Session Organisers in consultation with the Special Session Chair and one of the three Conference Chairs.

Organisers

- Dr Michael J. Watts, Auckland Institute of Studies, Auckland, New Zealand.
mjwatts@ieee.org
- Professor Jie Yang, Shanghai Jiao Tong University, Shanghai, China, jieyang@sjtu.edu.cn

Dr Michael J. Watts

Dr Michael J. Watts (Senior Member, IEEE) is the Academic Head of Programme for Information Technology at Auckland Institute of Studies, Auckland, New Zealand. His research interests are in the areas of ecological informatics, neural networks, neuro-fuzzy systems, and evolutionary algorithms. He is particularly interested in the intersections of these areas, where computational intelligence methods can be applied to ecological informatics. He has published more than 70 peer-reviewed papers in a range of international journals and conferences on a variety of topics, particularly computational intelligence and ecological informatics. He is currently on the editorial boards of the Springer journal *Soft Computing* and the IEEE *Transactions on Neural Networks and Learning Systems*. He teaches basic database engineering, fundamentals of programming, data mining and information security and serves on a number of committees of the IEEE Computational Intelligence Society including the Neural Networks Technical Committee and the Standards Committee.

Professor Jie Yang

Jie Yang is the Professor and Director of the Institute of Image Processing and Pattern recognition in Shanghai Jiao Tong University. He received a bachelor's degree in Automatic Control in Shanghai Jiao Tong University, where a master's degree in Pattern Recognition & Intelligent System was achieved

three years later. In 1994, he received Ph.D. at Department of Computer Science, University of Hamburg, Germany. He is the principal investigator of more than 30 national and ministry scientific research projects in image processing, pattern recognition, data mining, and artificial intelligence, including two national 973 research plan projects, three national 863 research plan projects, three National Nature Foundation projects, five international cooperative projects with France, Korea, Japan, New Zealand. He has published four books and more than four hundred articles in national or international academic journals and conferences. Up to now, he has supervised 4 postdoctoral, 32 doctors and 55 masters, and been awarded five research achievement prizes from ministry of Education, China and Shanghai municipality. One Ph.D. dissertation he supervised was evaluated as "National Best Ph.D. Dissertation" in 2009. Two Ph.D. dissertations he supervised were evaluated as "Shanghai Best Ph.D. Dissertation" in 2009 and 2010. He has owned 25 patents.