The 2013 International Joint Conference on Neural Networks

August 4 – 9, 2013
Fairmont Hotel
Dallas, Texas, USA

Sponsored by:

International Neural Network Society

IEEE Computational Intelligence Society

Welcome from the General Chairs

On behalf of the Organizing Committee, we would like to warmly welcome you to the 2013 International Joint Conference on Neural Networks (IJCNN 2013) in Dallas, Texas, USA.

This conference continues the tradition of joint sponsorship of IJCNN by the International Neural Network Society (INNS) and the IEEE Computational Intelligence Society (IEEE-CIS). This collaboration has produced many successful meetings in past years, and this year's meeting is no exception. We would like to thank the leadership of both organizations, and particularly the Presidents, Danil Prokhorov and Marios Polycarpou, for making this possible.

This year's venue, Texas, is well known for hosting high tech giants like Texas Instruments, Johnson Space Centre in Houston and leading Universities. The synergy between advanced information processing, notably neural networks and dedicated hardware, led to many applications ranging from space to health and robotics with truly groundbreaking results. These include but are not limited to brain-inspired techniques to address the 'Big Data' challenge, to understand deeper the intricate details of brain functioning and assist in neuro-degenerative disease, to emulate and complement the brain, to advance human-computer interaction and develop systems with a higher level of autonomy, to understand and efficiently process social and bio-signals, to enhance man-made vision systems, to emulate and benefit from evolution and to adequately address the dynamic evolution of the environment and or representation and measurements of it.

This also has led to brain-line computer systems and neural implants. IJCNN 2013 continues and takes further the tradition of a confluence and mutual complementarity of neuroscience and engineering applications which is typical for the INNS organised events. This is evident in many aspects of the conference, but perhaps it is most notable in the National Science Foundation sponsored Workshop on Cognitive Science which will feature some leading researchers in the area working on better understanding of the way the human brain is capable of cognition elements that scientists in various application areas attempt to emulate. The Workshop is organised by the Program Chair, Péter Érdi.

In addition to this NSF sponsored Workshop there will be workshops on Autonomous Learning co-organised by Asim Roy and Plamen Angelov and on Brain and Language organised by Colleen Crangle.

The plenary talks by Stephen Grossberg, Lydia Kavraki, Frank Lewis and Olaf Sporns also reflect the broad themes of neuroscience and engineering applications, and go beyond traditional neural networks into areas like behavioural economics, bio-molecules, robotics, control, culminating in the talk about President Obama's initiative on the brain presented by Terry Sejnowski.

This year's edition will feature over a dozen tutorials as well as over two dozen special sessions covering a broad range of themes and topics. A special – if sober – event at IJCNN 2013 is the dedicated special session convened to remember one of the pioneers in the field of neural networks, John Taylor, who passed away in 2012. The session will include remembrances by colleagues and friends of Dr. Taylor including Walter Freeman, Stephen Grossberg, Robert Kozma, Amir Hussein, Vassilis Cutsuridis, Vishwanthan Mohan, Thomas Trappenberg, Oury Monchi, and Daniel Levine.

In this year's edition of IJCNN we continue with the neuroscience and neurocognition abstracts – an initiative introduced in IJCNN 2011 which was taken well also in IJCNN 2012 within WCCI. The goal was to attract research communities which were not traditionally submitting to IJCNN and similar conferences and are not accustomed to writing full-length papers for conferences that they usually attend. This experiment has been successful in that about 10% of all papers were abstracts.

For IJCNN we received over 600 (605) submissions, some of which were later withdrawn. We accepted in the final programme 477 papers (79%) including 33 abstracts. Out of these 261 are oral presentations, 206 are posters and 10 are plenary or invited presentations. The programme also features 13 tutorials, and three post-conference workshops plus an NSF sponsored workshop.

To organise such a forum was very demanding in terms of organization, efforts, coordination and positive spirit. We would like to thank most of all our colleagues on the Conference Organising Committee, Péter Érdi, the Program Chair, including for his efforts to secure NSF funding for the Workshop on Cognitive Science, and the two Program Co-Chairs, Marley Vellasco and Emilio Del Moral Hernandez whose dedication made the organization of the conference possible. Special thanks are due to Bruno Apolloni, the Publication Chair. We would also like to thank our Special Session Chair, Radu-Emil Precup, Awards Chair, Mike Watts, Tutorials Chairs, Leonid Perlovsky and Suresh Sundaram, Competitions Chairs, Sven Crone, Workshops Chair, Simona Doboli, and Panels Chair, Juyang Weng. We also thank all other members of the Organizing Committee for their great help, all of whom put in a special effort towards the meeting's success.

We are particularly grateful to all members of the Program Committee and all reviewers who deserve great appreciation for providing discerning and timely reviews of over 600 submissions. We are also very grateful for the support we have received from many members of the INNS Board of Governors, and especially for sage advice from the Vice-President for Conferences, Ali Minai as well as the President, Danil Prokhorov (previously Vice President for Conferences himself).

Finally, we would like to thank the organizational team at The Rees Group led by Jane Shepard and Linda Potchoiba, without whose work the meeting would have been infinitely harder to organize.

As in past years, INNS and IEEE-CIS have provided support for many students to attend the conference. This year, the support has been supplemented by a grant from NSF to encourage more students – especially women, under-represented minorities, and students from undergraduate institutions. We hope that IJCNN will continue to serve as a place where young researchers can find both knowledge and inspiration.

We wish you a wonderful, productive, and pleasant IJCNN 2013.

Plamen Angelov and Daniel Levine
General Co-Chairs IJCNN 2013

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The organizers would like to thank the following members of the Program Committee – including chairs of special sessions – who coordinated the reviewing of submissions and gave generously of their time and effort in the process:

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The list above includes all individuals who coordinated the review of one or more papers/abstracts, including the organizers of special sessions at IJCNN 2013.