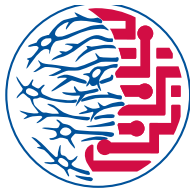


The 2011 International Joint Conference on Neural Networks

July 31 – August 5, 2011
Doubletree Hotel
San Jose, California, USA

Sponsored by:



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Welcome from the General Chair



On behalf of the Organizing Committee, I welcome you to the 2011 International Joint Conference on Neural Networks (IJCNN 2011) in San Jose, California. 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. I would like to thank the leadership of both organizations, and particularly the Presidents, Ron Sun and Gary Yen, for making this possible.

It is fitting that IJCNN is being held in the heart of Silicon Valley just as new technologies are creating a truly fruitful integration of neural information processing and neuromorphic hardware along many dimensions ranging from brain-scale computational systems and memristor technology to neural implants and brain-machine interfaces. This fusion of biology and engineering is the key theme of IJCNN 2011, and is prominent in many aspects of the conference. The most notable of these is a special day-long symposium called "From Brains to Machines," organized with the generous sponsorship of the National Science Foundation (NSF). This symposium brings together some of the leading researchers working to understand the brain and produce brain-like intelligence in machines. In addition to this keynote symposium, the conference theme is also reinforced by extended tracks of invited and contributed talks and panels on neuromorphic systems – especially memristor technology – and autonomous intelligent systems. The plenary talks by Stefan Schaal, Juergen Schmidhuber, Michael Arbib, Dharmendra Modha, Leon Glass, and Andrew Ng also reflect the broad themes of cognition and intelligence, and go beyond traditional neural networks into areas like embodied robotics, data mining, nanotechnology, cognition and creativity, culminating in a featured plenary session entitled "The Emergence of Mind" with talks by Walter Freeman, Stephen Grossberg, and Bernard Baars. The tutorials and workshops also cover a broad range of themes and topics. All in all, this is probably one of the most interdisciplinary IJCNNs in recent years.

A special – if somber – event at IJCNN 2011 is a special plenary session convened to remember one of the pioneers in the field of neural networks, David Rumelhart, who passed away in March 2011. The session, will include remembrances by colleagues, friends and family, and a technical talk by Michael Jordan who worked with David Rumelhart in the 1990s.

This year's IJCNN is also trying out a new experiment, allowing authors in the areas of neuroscience and neurocognition (broadly interpreted) to submit abstracts rather than full papers. The goal was to elicit submissions from research communities where writing full-length papers for a conference is not standard practice. The experiment has been successful in that 85 abstracts were submitted to the conference, of which 53 (64%) are included in the final program. In addition to these, we also received 620 full paper submissions, of which 468 (75%) are in the program. The final program has 521 oral and poster presentations plus 21 invited or plenary

presentations, 20 tutorial sessions, and 10 post-conference workshop sessions.

Putting together a meeting of the scope and size of IJCNN is a monumental task – and one to which all members of the Organizing Committee have contributed both effort and judgment. Above all, I would like to thank my colleagues on the conference Executive Committee – Hava Siegelmann, the Program Chair, and the two Technical Co-Chairs, Michael Georgiopoulos and Cesare Alippi – whose willing dedication made the organization of the conference a pleasure rather than a duty. A most special thanks is due to Steve Bressler (Special Sessions Chair) for his heroic work in helping obtain NSF funding and putting together the "From Brains to Machines" symposium in addition to fulfilling his duties as the Special Sessions Chair. I also thank all other members of the Organizing Committee for their great help – in particular Marios Polycarpou (Publications Chair), Georgios Anagnostopoulos (Registration Chair), Robert Kozma (Tutorials Chair), Robi Polikar (Workshops Chair), Simona Doboli (Panels Chair), Risto Miikkulainen (Plenary Chair), Tom Cholewo (Web Reviews Chair), and Kun Tu (Webmaster), all of whom put in a special effort towards the meeting's success. Thanks are also due to Sven Crone and Isabelle Guyon for organizing a wonderful set of competitions whose results we look forward to seeing at the conference. Several members of the Organizing Committee – notably Irwin King, Yoonsuck Choe, Haibo He, and Manuel Roveri – worked very actively to publicize the conference in various forums, for which I am grateful. All members of the Program Committee and all reviewers also deserve great appreciation for providing discerning and timely reviews of over 700 submissions. I am also very grateful for the support I have received from many members of the INNS Board of Governors, and especially for sage advice from the Vice-President for Conferences, Danil Prokhorov. Finally, I would like to thank the organizational team at The Rees Group led by Jane Shepard, 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.

Three decades ago, the computer revolution took root and flourished in the fertile soil of what came to be known as Silicon Valley. It is appropriate that today, those who are igniting another technological revolution to create truly life-like intelligence have assembled in the heart of Silicon Valley once again to exchange ideas and celebrate the future.

I wish you a wonderful, productive, and pleasant IJCNN 2011.

Ali A. Minai, General Chair – IJCNN 2011
School of Electronic & Computing Systems
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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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