Connections

The Newsletter of the IEEE Neural Networks Council

Conference Preview:

IEEE WORLD CONGRESS ON COMPUTATIONAL INTELLIGENCE
June 26-July 2, 1994
Walt Disney World Dolphin Hotel
Orlando Florida

Who *are* these people? See *VRAIS '93*, p. 5

IEEE Neural Networks Council Constituent Societies

Circuits and Systems Society
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Computer Society
Control Systems Society
Engineering in Medicine & Biology Soc.
Industrial Electronics Society
Industry Applications Society
Information Theory Society

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Conference Reports

IJCNN-93 Nagoya

The international joint conference on Neural Networks (IJCNN'93-NAGOYA) was held in Nagoya, Japan from October 25 to 29, 1993 under the joint sponsorship of: The IEEE Neural Network Council (NNC), Japan Neural Network Society (JNNS), International Neural Network Society (INNS), European Neural Network Society (ENNS), The Society of Instrument and Control Engineers (SICE), and The Institute of Electronics, Information and Communication Engineers (IEICE). It was the world's largest conference on neural networks, and this was the first time it was held in Japan. Nagoya is located between Tokyo and Osaka.

There were about 1500 participants from approximately 40 nations including participants to the public industrial forum. The Advisory Chair of the IJCNN'93-NAGOYA was Prof. F. Harashima, the Organizing Chair Prof. S. Amari, the Program Chair Prof. K. Fukushima, and the Steering Chair Prof. T. Fukuda.

The conference began with an opening lecture entitled "What Can We Expect from Neural Network Models?" by Prof. M. Ito, and two keynote lectures entitled "Strategies for Developing Effective Neural Network Applications" by Prof. D. E. Rumelhart and "The Brain and Computer" by Prof. S. Amari. An industry forum "How Does Neural-Technology Change Industries?" was also held which was open to the public. There were five panelists from financial, economic, industrial, and academic backgrounds. The titles of their talks are "Advanced Technology: Impact on Financial Industry and Financial Markets" by Dr. G. J. Deboeck, "Integrating Neural Network for Successful Industrial Application" by Prof. F. Fogelman-Soulie, "Neurocomputational Robots - The Primary Industry of the Next Millennium" by Dr. R. Hecht-Nielsen, "Applications of Neural Networks to Home Appliances" by Dr. T. Nitta, and "How the ANN can contribute to the industrial development" by Mr. K. Noguchi. Following the introduction by Prof. T. Fukuda, they had an active discussion on the past, present and future state of neural networks. They provided an opportunity for attendees to understand the possibility of applying neural networks in industrial, finance and other fields, and find new research & development issues and applications.

The remainder of the conference consisted of three keynote lectures entitled "Neural Networks in the Brain Involved in Memory and Recall" by Prof. E. T. Rolls, "Human Level Cognition in Embodied Robots" by Prof. R. A. Brooks, and "Improved Generalization Ability Using Constrained Neural Network Architecture" by Prof. K. Fukushima; 29 technical sessions where about 180 papers were presented; and 530 poster presentations. The technical programs were prepared by the Program Co-Chairs, Prof. K. Fukushima, Prof. R. J. Marks II, Dr. H. H. Szu, and Prof. N. Sugie. A pre-conference session of tutorials in seven fields: Neurophysiology, Biological Models, Nonlinear Systems, Learning, Control, Hardware, and Pattern Recognition and Connectionist Models, drew many participants. They included discussions of approaches based on a combination of neural networks and fuzzy logic as well as presentations on basic concepts of neural networks, fuzzy logic, and genetic algorithm.

The reception, banquet, and closing party were prepared by the Social Events Chair, Prof. K. Kosuge. The banquet speaker, Dr. Goto, the President of Makita Corporation, gave a very interesting speech entitled "Japanese Creativity & Flexibility."

Special sessions during the conference included a round table discussion on "Financial and Economic Applications of Advanced Technology," Real World Computing, President Forum, and Panel Discussion on "Standards for an International Language and Symbology for Artificial Neural Networks, Performance Measure Methodology and Interfaces."

In the Presidents Forum, the presidents of neural network-related societies around the world introduced their activities and confirmed that there would be future exchange of information and various forms of cooperation.

Research on neural networks spans many fields. Topics of discussion were basic research such as brain physiology, neurobiology, cognitive science, learning methods, and neural network architecture, as well as application research such as recognition, optimization, control, hybrid systems, hardware, and its implementation. In particular, for the application to dynamic systems including "chaos," it was indicated that recurrent neural networks would be increasingly important. There was also much interest in hybrid systems, or the fusion and integration of neural networks with fuzzy logic and evolutionary computation, i.e. genetic algorithms.

Neural networks research had become a popular subject with the notion that anything was possible. However, the fad seems to be subsiding somewhat as the boundaries of neural networks become clear from the results of much work in this area. This conference has been set up so that there were many papers presented on application. We can foresee that the fields where neural networks will actually be used will increase and broaden in the future, and it is envisioned that they will certainly be effective.

— Dr. Takanori Shibata
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