

INTERNATIONAL NEURAL NETWORK CONFERENCE

INNOC 90 PARIS
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Volume 2

**INTERNATIONAL
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JULY 9-13, 1990
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**UNDER THE PATRONAGE OF THE
COMMISSION OF THE EUROPEAN COMMUNITIES**

**THE INTERNATIONAL NEURAL NETWORK SOCIETY (INNS),
THE IEEE NEURAL NETWORK COUNCIL
COOPERATING SOCIETIES**



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THE ORGANISATION

The conference INNC-90-PARIS held at the Palais des Congrès from July 9 - 13, 1990 is divided into four main parts with 24 sessions:

- Applications (Image, Speech and Signal Processing, Robotics and Control, Optimization, Classification, Decision).
- Implementation (Neurobiological models, Cognitive science, Electronic and Optical neurocomputers, Implementations on Parallel Hardwares, Languages and Development environment).
- Theory (Supervised and Unsupervised Learning, Associative Memories, Architectures, Analysis of Network Dynamics, Statistics).
- Commercial (European and Government programs, Commercial Products, Company Strategy).

The trade show to display the latest innovations on neural networks will have approximately 40 exhibitors.

On July 9th, nine tutorials will be given by the world's leading specialists in the field.

453 papers were received from 35 countries (half from Europe):

- . 221 papers were accepted for oral presentation.
- . 164 papers were accepted for poster presentation.

Three-fourths of the papers were from scientists, one-fourth from industrialists.

We wish to thank for their help and their confidence: the INNS, the IEEE, the sponsors, the chairs, the speakers, the exhibitors, the reviewers, the participants and particularly the THOMSON, Bernard ANGENIOL and Bernard WIDROW who made this first large European Conference on Neural Networks supported by the INNS and the IEEE possible.

Nina THELLIER
INNC-90-PARIS Conference manager

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01 INFORMATIQUE

FOREWORD

Neural Networks have been the theater of a dramatic increase of activities in the last five years.

The interest of mixing results from fields as different as neurobiology, physics (spin glass theory), mathematics (linear algebra, statistics...), computer science (software engineering, hardware architectures...) or psychology has attracted a large number of researchers to the field. The perspective of dramatic improvements in many applications has lead important companies to launch new neural network programs and start-ups have mushroomed to address this new market.

Throughout the world large programs are being set-up: in Japan the government has committed more than \$18 million per year to its 20 year Human Frontier Science program; the DARPA and the US Navy have alloted more than \$10 million per year each and other US government agencies are contributing to important but less ambitious programs. Neural networks are also a major research are in the supercomputing initiative.

Europe has from the beginning taken an active part in funding major projects in the new field with BRAIN, BRA, ANNIE and PYGMALION (Esprit). Approximately \$20 million has been invested to date since 1988 and new programs of nearly \$30 million are being funded for the next 3 years. National projects in certain countries may globally double these amounts.

Neural network conferences are attracting larger audiences than ever before. Prior to 1987 attendance never surpassed 300.

The June 1989 IJCNN conference in Washington had over 2200 participants.

In Europe many workshops have taken place during the past 3 years but **INNC-90-PARIS** is the first large conference to take place under the patronage of the Commission of the European Communities, with the INNS and IEEE acting as cooperating societies. The marked interest of the Americans for developing scientific and commercial exchanges with their European counterparts is also significant.

We would like to thank and congratulate all those who have contributed to the Conference: the authors and reviewers of papers, the chairmen of the sessions, the speakers, panelists and trade show participants, all the members of the program committee, and especially Teuvo Kohonen, the program chair.

Finally we wish to thank the NTC team for the tremendous work they did in the practical organization.

Bernard Angeniol, Bernard Widrow
INNC-90-PARIS Conference co-chairs

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