Foreword

MicroNeuro, the International Conference on Microelectronics for Neural Networks has emerged as the only international forum specifically devoted to all the aspects of implementing artificial neural networks and fuzzy systems. It differs thereby from most other conferences on neural networks, which usually relegate hardware implementations in hidden corners of their programme. It complements the well established circuit conferences by addressing the particular requirements of neural and fuzzy systems and by exploiting the related new field of possible solutions.

Like previous ones, the program of this fifth edition lays emphasis on working devices. Many of them are still experimental whereas others are already applicable in the real world. Most of the papers describe silicon VLSI implementations, with a balanced number of contributions outlining digital and analog approaches. Intended applications include pattern, character and speech recognition, intelligent control, robot navigation, classification and general problem solving.

Although analog circuits are being replaced by digital circuits in traditional processing tasks, they are expected to play a dominant role in carrying out real-time perceptive tasks. Indeed, this trend is confirmed by two full sessions (1 and 2) on analog VLSI for vision and for the implementation of new processing schemes inspired by a closer examination of biological solutions.

Two more sessions (3 and 4) are devoted to further analog implementations of various types architectures and of image processing systems. Session 7 deals with pulse stream networks, where the analog information is represented by pulse duration or frequency. A special session (5) is dedicated to an overview of the various methods that can simplify hardware implementations and to the possible use of technologies beyond standard silicon VLSI. Digital implementations fill up two sessions (6 and 8) where a variety of chip architectures and of full systems are described. This series of 4 invited and 27 contributed papers is complemented by 20 papers presented as posters due to the limited time availability of a programme avoiding parallel sessions.

We would like to thank and congratulate all the volunteers who made this conference possible. Special thanks are due to the members of the steering and program committees as well as to the two international chairmen for reviewing a total of 62 submitted papers, to all the authors and to the invited speakers for meeting the deadline with proper camera-ready manuscripts, to Monique Dubois, Marie-Jo Pellaud and Paolo Ienne for their dedication to the overall organization. The editors also wishes to thank the publisher, the IEEE Computer Society, for the professional work in preparing these proceedings. We are confident that this conference and its proceedings will add a valuable contribution to the promotion of neuro and fuzzy systems as real-world solutions.

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