

Francesco Mele
Giuliana Ramella
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Second International Symposium, BVAI 2007
Naples, Italy, October 2007
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Preface

Understanding the mechanisms involved in vision and intelligent behavior of the brain, both from a natural and artificial point of view, demands more and more multidisciplinary and integrated approaches of different disciplines: biophysics and neurobiology, visual and cognitive sciences and theoretical neuroscience being only a small sample.

The Brain, Vision and Artificial Intelligence Symposium 2007 (BVAI 2007, Naples, Italy, October 10-12, 2007) was the second edition of a multidisciplinary symposium that aims at gathering scientists involved in the study of basic brain, natural vision, artificial vision, and artificial intelligence to promote discussion, exchange of ideas, and integration.

BVAI 2007 was organized by researchers of the Institute of Cybernetics "E. Caianiello" of the Italian National Research Council, Pozzuoli, Italy (ICIB-CNR), with the support of the Italian Institute for Philosophical Studies (IISF). It was sponsored by EBSA (European Biophysics Societies Association), GIRPR (Italian Group of Researchers in Pattern Recognition), MARS (Microgravity Advanced Research Support) Center, NEATEK SpA, PAN (Palazzo delle Arti Napoli), SINS (Italian Society for Neurosciences), and Regione Campania. Travel grants were provided for deserving young participants by EBSA, SINS and GIRPR. The symposium was held under the auspices of the AI*IA (Italian Association of Artificial Intelligence), Comune di Napoli - Assessorato alla Cultura and SIBPA (Italian Society of Pure and Applied Biophysics), and with the help of the MQC² (Macroscopic Quantum Coherence and Computing) Association.

The scientific program included the participation of eight invited speakers, selected among international leading scientists in the above-mentioned fields: Michael Arbib, University of Southern California (USA), Matteo Carandini, The Smith-Kettlewell Eye Research Institute (USA), Karl Gegenfurtner, Justus-Liebig University (Germany), Petr Lansky, Academy of Sciences (Czech Republic), José del R. Millán, IDIAP Research Institute (Switzerland), Oliviero Stock, IRST and Fondazione Bruno Kessler (Italy), Massimo Tistarelli, University of Sassari (Italy), John K. Tsotsos, York University (Canada). Furthermore, the program included 50 contributions from worldwide participants, presented in plenary oral and poster sessions. The peer-reviewing process for the papers was performed by the Scientific Committee, including distinguished members of the scientific community, together with a number of additional reviewers, appointed by the Scientific Committee members. The accepted contributions were selected among about 80 papers submitted to BVAI 2007.

In this volume, all contributions to the symposium have been gathered according to an increasing degree of abstraction, going from the most elemental aspects of the visual processes to the most complex cognitive ones. The material has been structured into the following parts: Basic Models in Visual Sciences, Cortical Mechanism of Vision, Color Processing in Natural Vision, Action-Oriented Vision, Visual Recognition and Attentive Modulation, Biometric Recognition, Image Segmentation and Recognition, Disparity Calculation and Noise Analysis, Signal Identification in Neural

Models, Natural and Artificial Representation Issues in Artificial Intelligence, Meaning-Interaction-Emotion, Robot Navigation and Control. In our opinion, these topics can be considered the flagstones paving the road to the ongoing integration among research in brain, vision and intelligence. We hope that this volume provides new insights and is the basis of constructive discussions.

We would like to thank the invited speakers and all the contributors, the members of the Scientific Committees, including the additional reviewers and all the participants. Acknowledgements are due to all our sponsors (ICIB-CNR, IISF, EBSA, GIRPR, MARS Center, NEATEK SpA, PAN, SINS, Regione Campania) for their financial contribution. We would like to acknowledge the Steering Committee members for their advice and support. A special thanks goes to the Local Committee and Secretariat members, who provided us with helpful assistance.

July 2007

Francesco Mele
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