Foreword

Driven by the requirements of a large number of practical and commercially important applications, the last decade has witnessed considerable advances in pattern recognition. Better understanding of the design issues and new paradigms, such as the Support Vector Machine, have contributed to the development of improved methods of pattern classification. However, while any performance gains are welcome, and often extremely significant from the practical point of view, it is increasingly more challenging to reach the point of perfection as defined by the theoretical optimality of decision making in a given decision framework.

The asymptoticity of gains that can be made for a single classifier is a reflection of the fact that any particular design, regardless of how good it is, simply provides just one estimate of the optimal decision rule. This observation has motivated the recent interest in *Multiple Classifier Systems*, which aim to make use of several designs jointly to obtain a better estimate of the optimal decision boundary and thus improve the system performance. This volume contains the proceedings of the international workshop on Multiple Classifier Systems held at Robinson College, Cambridge, United Kingdom (July 2–4, 2001), which was organized to provide a forum for researchers in this subject area to exchange views and report their latest results.

Following its predecessor, Multiple Classifier Systems 2000 (Springer ISBN 3-540-67704-6), the particular aim of the MCS 2001 workshop was to bring together researchers from the diverse communities with interests in multiple classifiers: Machine Learning, Pattern Recognition, Neural Networks, and Statistics. This aim has been successfully accomplished, with this volume presenting 44 papers from the 4 different communities. The collection has been organized into thematic sessions dealing with bagging and boosting, MCS design methodology, ensemble classifiers, feature spaces for MCS, applications of MCS, one-class MCS and clustering, and, finally, combination strategies. It includes contributions from the invited speakers: Tin Ho (Lucent Technologies, USA), Nathan Intrator (Tel-Aviv University, Israel), and David Hand (Imperial College of Science and Technology London).

The workshop was sponsored by the University of Surrey, Guildford, United Kingdom and the University of Cagliari, Italy, and was co-sponsored by the International Association for Pattern Recognition through its Technical Committees TC1: Statistical Pattern Recognition techniques, and TC16: Algebraic and Discrete Mathematical Techniques in Pattern Recognition and Image Analysis, without whose support the workshop could not have taken place. Their financial assistance is gratefully acknowledged.

We also wish to convey our gratitude to all those who helped to organize MCS 2001. First of all our thanks are due to the members of the Scientific Committee who selected the best papers from a large number of submissions to create an excellent technical content. Jon Benediktsson played a particularly im-

portant role in this context in soliciting contributions for the special session on remote sensing. Last but not the least, special thanks are due to the members of the Organizing Committee for their selfless effort to make MCS 2001 successful. Notably, we would like to thank David Windridge for his contribution to the production of this volume, Giorgio Giacinto and Giorgio Fumera for maintaining the MCS 2001 website and to Terry Windeatt for compiling the workshop program.

Josef Kittler and Fabio Roli

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