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Adnan Amin Dov Dori
Pavel Pudil Herbert Freeman (Eds.)

Advances in Pattern Recognition

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Volume Editors

Adnan Amin
The University of New South Wales
School of Computer Science and Engineering
Sydney, NSW 2052, Australia
E-mail: amin@cse.unsw.edu.au

Dov Dori
Technion - Israel Institute of Technology
Haifa, 32000, Israel
E-mail: dori@ie.technion.ac.il

Pavel Pudil
The Academy of Sciences of the Czech Republic
Institute of Information Theory and Automation
182 08 Prague 8, Czech Republic
E-mail: pudil@utia.cas.cz

Herbert Freeman
Rutgers University, Computer Engineering
Piscataway, NJ 08854, USA
E-mail: freeman@caip.rutgers.edu

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Foreword

This book is unusual in that it contains the proceedings from two distinct workshops dealing with the field of pattern recognition. The workshops were held in parallel and closely coordinated. It was an attempt to resolve the dilemma of how to deal, in the light of the progressive specialization of pattern recognition, with the need for narrow-focus workshops without further balkanizing the field and introducing yet another conference that would compete for the time and resources of potential participants.

Pattern recognition is one of the most fundamental endeavors of science; in fact, one can say that it is the essence of all science. For most of the participants at the two workshops, however, pattern recognition is a specialization in its own right: the discipline dedicated to using computers to solve sensory-perception problems that are so well performed by humans – from recognizing handwriting, matching shapes, and classifying fingerprints to codifying machine "learning" methodologies and applying statistical techniques for the computer solution of practical problems in our technological society.

This book provides a fine collection of articles that reflect the current state of the art in pattern recognition and show the research directions currently being pursued. It should be a valuable resource for anyone who desires to know what is currently achievable in pattern recognition, what is likely to be achieved in the near future, and what gifts some of the more speculative investigations may present to us some day.

August 1998 Herbert Freeman

Preface

This volume contains all the papers presented at SSPR'98 and SPR'98, held at the Swiss Grand Hotel, Bondi Beach, Sydney, Australia, August 11-13, 1998.

SSPR'98 was the seventh meeting of the international workshop on Structural and Syntactic Pattern Recognition. This workshop has traditionally been held in conjunction with ICPR, the International Conference on Pattern Recognition.

SPR'98 was the second International workshop on Statistical Techniques in Pattern Recognition.

In 1998 the above were held back-to-back in Australia: SSPR'98 and SPR'98 in Sydney and the 14th ICPR in Brisbane. This is the first time these workshops have taken place in Australia and have run together. The two workshops joined together in a joint plenary session at which the invited papers were presented, followed by individual sessions running in parallel, so that for each workshop, of the three days, two days ran in parallel and one ran conjointly.

In 1998, the SSPR'98 and SPR'98 workshops were among the largest ever, with over 150 participants coming from almost every part of the world.

We received a total of 134 papers for both workshops (62 papers for SSPR and and 72 papers for SPR) from 35 different countries, confirming the intense and growing activity in pattern recognition, worldwide. The subjects of the workshops extend from more theoretical points to particular topics for application including, e.g., document image analysis and handwritten and printed character recognition. The emphasis of this latter work is on making the methods more robust and efficient.

The review process resulted in the selection of 107 papers. Only papers that received high ranking by all reviewers were accepted for presentation. Oral presentations were limited to 54 papers for both workshops. In setting the workshop program, we favored large poster sessions to encourage interactivity between researchers and promote exchanges and the establishment of new links. We invited six distinguished speakers, Horst Bunke from Bern University, Switzerland, Robert Haralick, Washington University, Seattle, USA, Dov Dori from Israel Institute of Technology, Israel, Roger Mohr from INPG, France, Rangachar Kasturi from Pennsylvania State University, USA, and Terry Caelli from Ohio State University, USA, to predict the state of the art in pattern recognition technologies in 2000 and suggest research perspectives and trends for the near future.

SSPR'98 and SPR'98 have been sponsored by the Australian Department of Industry Science and Tourism, School of Computer Science and Engineering, the Department of Artificial Intelligence in the School of Computer Science and Engineering at the University of New South Wales (UNSW), and the International Association of Pattern Recognition (IAPR).

We would like to express our sincere gratitude to all the members of the program committees, to the referees enlisted by them, who put in a lot of effort to ensure that the workshops had high technical quality. We would like to thank everyone who made this meeting possible: the authors for submitting papers, the invited speakers for accepting our invitation, the organizing committee, and

the sponsors for their support. Special thanks are due to Ted Cowcher and Kati Reader of the School of Comupter Science and Engineering at UNSW for their untiring effort in organization and assistance with the preparation of the proceedings. We appreciate the help and understanding of the editorial staff of Springer-Verlag, in particular Alfred Hofmann, who supported the publication of these proceedings in the LNCS series.

Finally, we would like to thank Paul Compton, and Claude Sammut of the School of Computer Science and Engineering at UNSW for their support of the workshops.

August 1998

Adnan Amin
Dov Dori
Pavel Pudil

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Herbert Freeman
Computer Engineering
Rutgers University
Piscataway, New Jersey 08854, USA
freeman@caip.rutgers.edu

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Adnan Amin
School of Computer Science & Engineering
University of New South Wales
Sydney 2052, NSW, Australia
amin@cse.unsw.edu.au

Dov Dori
Faculty of Industrial Engineering and Management
Technion–Israel Institute of Technology
Haifa 32000, Israel
dori@ie.technion.ac.il

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Honorary Chairman

Herbert Freeman
Computer Engineering
Rutgers University
Piscataway, New Jersey 08854, USA
freeman@caip.rutgers.edu

Co-Chairmen

Adnan Amin
School of Computer Science and Engineering
University of New South Wales
Sydney 2052, NSW, Austraila
amin@cse.unsw.edu.au

Pavel Pudil
Inst. of Information Theory and Automation
Academy of Sciences of Czech Republic
Czech Republic
pudil@utia.cas.cz

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