Series in Remote Sensing

Vol. 1

SOFT COMPUTING IN REMOTE SENSING DATA ANALYSIS

Editors

Elisabetta Binaghi

Pietro Alessandro Brivio

Anna Rampini

World Scientific

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SOFT COMPUTING IN
REMOTE SENSING DATA ANALYSIS

Proceedings of the International Workshop on

SOFT COMPUTING IN REMOTE SENSING DATA ANALYSIS

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Editors

Elisabetta Binaghi
ITIM–CNR, Milan

Pietro Alessandro Brivio
IRRS–CNR, Milan

Anna Rampini
ITIM–CNR, Milan

World Scientific
Singapore • New Jersey • London • Hong Kong

FOREWORD

It is a pleasure to be writing this foreword to introduce the first volume in our exciting new *Series in Remote Sensing*.

Remote Sensing (or Earth observation) is a discipline which has expanded enormously in the last decade or two. 20 years ago there were only a handful of books on the subject and the need then was for general textbooks at various levels suitable for students' use. Today. we have progressed beyond that stage. There are now many general books on remote sensing and we do not seek to add to their number in this series. Rather, this series is intended to include (i) more advanced and specialised monographs devoted to particular instrumentation, techniques or numerical/computational methods, (ii) volumes such as the present one which are derived from material presented at important conferences and (iii) volumes which make accessible to the international readership important material in the subject which had previously only been available in some other language than English. In the last category, plans are well advanced for one or two revised and edited versions of translations from the Russian literature and we are currently surveying the Chinese scene (recalling both the technical achievements of these two countries and also the enormous opportunities that exist in such large countries for the utilization of remote sensing techniques).

I would like to welcome this first volume in the series and to say that I look forward to the appearance of subsequent volumes in the near future.

Arthur P. Cracknell
Series Editor
Dundee, April 1996

PREFACE

Soft Computing is a new emerging discipline rooted in a group of technologies — such as knowledge-based systems, neural networks, fuzzy set theory, probabilistic and evidential approaches, genetic algorithms — that have the common characteristic of mimicking the remarkable human ability in making decisions in an environment of uncertainty and imprecision.

Encouraged by the growing interest in Soft Computing and by the scientific effort already developed within the Remote Sensing Community, a group of researchers within the ITIM (Institute for Researches in Multimedia Information Technologies) and the IRRS (Institute for Researches in Sismic Risk) of National Research Council decided to take action to satisfy the need to meet other scientists engaged in related themes.

The International Workshop on Soft Computing in Remote Sensing Data Analysis, held in Milan on December 4–5, 1995, realized this idea that was received with great enthusiasm within the scientific community.

Participation in the Workshop was considerable and contributions came from several countries. Leading researchers from Europe and America accepted our invitation for plenary and invited lectures.

Papers presented at the Workshop are grouped in this volume into four sections. The first section contains plenary lectures; and other sections open with two invited papers each and deal with *Remote Sensing Classification by Neural Networks and Fuzzy Sets, Symbolic Approaches in Geographic Information Processing*, and *Remote Sensing Image Analysis* respectively.

The editors acknowledge the support of the sponsoring institutions and sincerely thank colleagues and friends who efficiently took care of the conference secretariat.

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Elisabetta Binaghi   (*ITIM–CNR, Milan*)
Pietro Alessandro Brivio (*IRRS–CNR, Milan*)
Anna Rampini   (*ITIM–CNR, Milan*)

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