Information Processing and Security Systems

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Preface

This book is based on the most recent results of collaborative research in the field of Information Processing Systems conducted by both university professors and young computer scientists. The extensive research has yielded some novel findings that might be directly employed in further technological innovations. The work reveals ground-breaking scientific achievements and indicates their practical applications.

The topics have been selected so as to cover three basic fields in Computer Science. The contents encompass three parts. Part I contains twelve chapters on Digital Image and Signal Processing. Part II consists of thirteen chapters on Computer Security and Safety. Part III includes seventeen chapters dealing with Artificial Intelligence-Oriented Trends and their Applications.

Throughout the book, a great emphasis is placed on theory as well as practice. The contributions not only reflect invaluable experience of eminent professors in relevant areas but also point out new methods and approaches developed by computer scientists and researchers. Most of the contributions are extended versions of original papers on the topics mentioned above, which were introduced at recent international conferences. These works were reviewed by two or three referees, who recommended publishing them in their modified versions.

We expect that this book will throw some new light on unresolved problems and will inspire the reader to greater challenges. Hopefully it will be an effective tool for both senior and young researchers.

Editors, K. Saeed and J. Pejaś

Foreword

This book outlines new trends that have emerged in scientific research in the field of Computer Science. It provides a forum of academic works and researches conducted by both distinguished and young computer scientists.

It is a pleasure to recognize the fact that a great number of academic teachers working for the Faculty of Engineering in Elk at the University of Finance and Management in Bialystok have appeared to be actively committed to research studies. Undoubtedly, their remarkable efforts, which are presented in this book, make a valuable contribution to science. This ascertains the fact that the newly founded academic core, which Elk became as late as the beginning of XXI century, constantly raises its educational standard.

This book is a result of a fruitful collaboration between the Department of Computer Engineering in the Faculty of Engineering in Elk and experienced Departments of Computer Science in Bialystok University of Technology and Technical University of Szczecin.

I would like to extend my sincere congratulations to the editors of the book, Dr Khalid Saeed and Dr Jerzy Pejaś, on their joint endeavor in producing a work at such a high level.

Professor Józef Szabłowski, President
University of Finance and Management in Bialystok

PART I

Digital Image and Signal Processing