Advances in Audio and Speech Signal Processing: Technologies and Applications

Table of Contents

Foreword ........................................................................................................................................ vi

Preface .......................................................................................................................................... viii

Chapter I
Introduction to Audio and Speech Signal Processing ................................................................. 1
Hector Perez-Meana, National Polytechnic Institute, Mexico
Mariko Nakano-Miyatake, National Polytechnic Institute, Mexico

Section I
Audio and Speech Signal Processing Technology

Chapter II
Digital Filters for Digital Audio Effects ...................................................................................... 22
Gordana Jovanovic Dolecek, National Institute of Astrophysics, Mexico
Alfonso Fernandez-Vazquez, National Institute of Astrophysics, Mexico

Chapter III
Spectral-Based Analysis and Synthesis of Audio Signals ......................................................... 56
Paulo A.A. Esquef, Nokia Institute of Technology, Brazil
Luiz W.P. Biscainho, Federal University of Rio de Janeiro, Brazil
Chapter IV
DSP Techniques for Sound Enhancement of Old Recordings .........................93
   Paulo A.A. Esquef, Nokia Institute of Technology, Brazil
   Luiz W.P. Biscainho, Federal University of Rio de Janeiro, Brazil

Section II
Speech and Audio Watermarking Methods

Chapter V
Digital Watermarking Techniques for Audio and Speech Signals...............132
   Aparna Gurijala, Michigan State University, USA
   John R. Deller, Jr., Michigan State University, USA

Chapter VI
Audio and Speech Watermarking and Quality Evaluation .......................161
   Ronghui Tu, University of Ottawa, Canada
   Jiying Zhao, University of Ottawa, Canada

Section III
Adaptive Filter Algorithms

Chapter VII
Adaptive Filters: Structures, Algorithms, and Applications.......................190
   Sergio L. Netto, Federal University of Rio de Janeiro, Brazil
   Luiz W.P. Biscainho, Federal University of Rio de Janeiro, Brazil

Chapter VIII
Adaptive Digital Filtering and Its Algorithms for Acoustic Echo Canceling........................................225
   Mohammad Reza Asharif, University of Okinawa, Japan
   Rui Chen, University of Okinawa, Japan

Chapter IX
Active Noise Canceling: Structures and Adaption Algorithms...............286
   Hector Perez-Meana, National Polytechnic Institute, Mexico
   Mariko Nakano-Miyatake, National Polytechnic Institute, Mexico

Chapter X
Differentially Fed Artificial Neural Networks for Speech Signal Prediction......309
   Manjunath Ramachandra Iyer, Bangalore University, India
Section IV
Feature Extraction Algorithms and Speech Speaker Recognition

Chapter XI
Introduction to Speech Recognition .................................................................325
   Sergio Suárez-Guerra, National Polytechnic Institute, Mexico
   Jose Luis Orokeza-Rodriguez, National Polytechnic Institute, Mexico

Chapter XII
Advanced Techniques in Speech Recognition .................................................349
   Jose Luis Orokeza-Rodriguez, National Polytechnic Institute, Mexico
   Sergio Suárez-Guerra, National Polytechnic Institute, Mexico

Chapter XIII
Speaker Recognition ..........................................................................................371
   Shung-Yung Lung, National University of Taiwan, Taiwan

Chapter XIV
Speech Technologies for Language Therapy ..................................................408
   Ingrid Kirschning, University de las Americas, Mexico
   Ronald Cole, University of Colorado, USA

About the Authors ............................................................................................434

Index ..................................................................................................................439