

Table of Contents

I Fundamentals

How Is Individuality Expressed in Voice? An Introduction to Speech Production and Description for Speaker Classification	1
<i>Volker Dellwo, Mark Huckvale, and Michael Ashby</i>	
Speaker Classification Concepts: Past, Present and Future.....	21
<i>David R. Hill</i>	

II Characteristics

Speaker Characteristics	47
<i>Tanja Schultz</i>	
Foreign Accent	75
<i>Ulrike Gut</i>	
Acoustic Analysis of Adult Speaker Age	88
<i>Susanne Schötz</i>	
Speech Under Stress: Analysis, Modeling and Recognition	108
<i>John H.L. Hansen and Sanjay Patil</i>	
Speaker Characteristics and Emotion Classification	138
<i>Anton Batliner and Richard Huber</i>	
Emotions in Speech: Juristic Implications	152
<i>Erik J. Eriksson, Robert D. Rodman, and Robert C. Hubal</i>	

III Applications

Application of Speaker Classification in Human Machine Dialog Systems	174
<i>Felix Burkhardt, Richard Huber, and Anton Batliner</i>	
Speaker Classification in Forensic Phonetics and Acoustics	180
<i>Michael Jessen</i>	
Forensic Automatic Speaker Classification in the "Coming Paradigm Shift"	205
<i>Joaquín Gonzalez-Rodriguez and Daniel Ramos</i>	

The Many Roles of Speaker Classification in Speaker Verification and Identification 218
Judith Markowitz

IV Methods and Features

Frame Based Features 226
Stefan Schacht, Jacques Koreman, Christoph Lauer, Andrew Morris, Dalei Wu, and Dietrich Klakow

Higher-Level Features in Speaker Recognition 241
Elizabeth Shriberg

Enhancing Speaker Discrimination at the Feature Level 260
Jacques Koreman, Dalei Wu, and Andrew C. Morris

Classification Methods for Speaker Recognition 278
D.E. Sturim, W.M. Campbell, and D.A. Reynolds

Multi-stream Fusion for Speaker Classification 298
Izhak Shafran

V Evaluation

Evaluations of Automatic Speaker Classification Systems 313
Alvin F. Martin

An Introduction to Application-Independent Evaluation of Speaker Recognition Systems 330
David A. van Leeuwen and Niko Brümmer

Author Index 355