



University of Firenze

Department of Physics and Department of Electronic Engineering

***MODELS AND ANALYSIS OF VOCAL EMISSIONS
FOR BIOMEDICAL APPLICATIONS***

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Edited by

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**INTERNATIONAL WORKSHOP
ON
MODELS AND ANALYSIS OF VOCAL EMISSIONS FOR BIOMEDICAL
APPLICATIONS**

Firenze, Italy, 1-3 September 1999

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FOREWORD

This volume of proceedings includes the contributions presented at the “International Workshop on Models and Analysis of Vocal Emissions for Biomedical Applications”, held in Firenze from 1 to 3 September 1999.

The main subject, suggested by the workshop title, regards methods for analysing hoarseness in the human voice, as it can be connected to pathologic states of the vocal apparatus, or in general methods for retrieving features of voice related to particular physiological or neurological conditions.

The general purpose of this kind of studies is to assess reliable procedures for objective, quantitative definition of levels of voice disorder.

However, methods of voice analysis are also employed to characterise voices from the point of view of voice recognition, definition of parameters for voice synthesis, clarification of different aspects of voice when different people speak in their own language or dialect, or even state of humour. These are subjects of several papers presented at the workshop.

A special point is that of singing voice, and a group of papers deal with special aspects of this fascinating human activity.

Neonatal children are able to express themselves with more or less unformed sounds and cries, which are, however, also a means for an indication of their state of health. This point, so clear to parents since the origin of mankind, has also been subject of quantitative studies for many years. During this workshop we have had the pleasure of hearing from researchers who have investigated this important aspect of voice research.

Another important topic is that of vocal folds and vocal tract modelling in the presence of pathologies which cause asymmetrical motion of the vocal folds. Some papers deal with the effects of this asymmetry on the airflow, and with specific devices for vibration detection.

Finally, new techniques for pathology detection and classification are presented, based on neural networks, fuzzy logic, wavelets and chaos theory. This emerging field of research was particularly interesting and stimulating for future work.

The organisers of this workshop are very grateful to the authors for their contributions, and to the attendants who have taken part in the discussions and in the proposals for future plans.

Claudia Manfredi and Piero Bruscazioni.

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