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Machine Learning for Multimodal Interaction

First International Workshop, MLMI 2004
Martigny, Switzerland, June 21-23, 2004
Revised Selected Papers

Volume Editors

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Preface

This book contains a selection of refereed papers presented at the 1st Workshop on Machine Learning for Multimodal Interaction (MLMI 2004), held at the "Centre du Parc," Martigny, Switzerland, during June 21–23, 2004. The workshop was organized and sponsored jointly by three European projects,

- AMI, Augmented Multiparty Interaction, http://www.amiproject.org
- PASCAL, Pattern Analysis, Statistical Modeling and Computational Learning, http://www.pascal-network.org
- M4, Multi-modal Meeting Manager, http://www.m4project.org

as well as the Swiss National Centre of Competence in Research (NCCR):

- IM2: Interactive Multimodal Information Management, http://www.im2.ch

MLMI 2004 was thus sponsored by the European Commission and the Swiss National Science Foundation.

Given the multiple links between the above projects and several related research areas, it was decided to organize a joint workshop bringing together researchers from the different communities working around the common theme of advanced machine learning algorithms for processing and structuring multimodal human interaction in meetings. The motivation for creating such a forum, which could be perceived as a number of papers from different research disciplines, evolved from a real need that arose from these projects and the strong motivation of their partners for such a multidisciplinary workshop. This assessment was indeed confirmed by the success of this first MLMI workshop, which attracted more than 200 participants.

The conference program featured invited talks, full papers (subject to careful peer review, by at least three reviewers), and posters (accepted on the basis of abstracts) covering a wide range of areas related to machine learning applied to multimodal interaction—and more specifically to multimodal meeting processing, as addressed by the M4, AMI and IM2 projects. These areas included:

- human-human communication modeling
- speech and visual processing
- multimodal processing, fusion and fission
- multimodal dialog modeling
- human-human interaction modeling
- multimodal data structuring and presentation
- multimedia indexing and retrieval
- meeting structure analysis
- meeting summarizing
- multimodal meeting annotation
- machine learning applied to the above

Out of the submitted full papers, about 60% were accepted for publication in this volume, after the authors were invited to take review comments and conference feedback into account.

In this book, and following the structure of the workshop, the papers were divided into the following sections:

1. HCI and Applications
2. Structuring and Interaction
3. Multimodal Processing
4. Speech Processing
5. Dialogue Management
6. Vision and Emotion

In the spirit of MLMI 2004 and its associated projects, all the oral presentations were recorded, and synchronized with additional material (such as presentation slides) and are now available, with search facilities, at: **http://mmm.idiap.ch/mlmi04/**

Based on the success of MLMI 2004, a series of MLMI workshop is now being planned, with the goal of involving a larger community, as well as a larger number of European projects working in similar or related areas. MLMI 2005 will be organized by the University of Edinburgh and held on 11–13 July 2005, also in collaboration with the NIST (US National Institute of Standards and Technology), while MLMI 2006 will probably be held in the US, probably in conjunction with a NIST evaluation.

Finally, we take this opportunity to thank our Program Committee members for an excellent job, as well as the sponsoring projects and funding agencies. We also thank all our administrative support, especially Nancy Robyr who played a key role in the management and organization of the workshop, as well as in the follow-up of all the details resulting in this book.

December 2004

Samy Bengio
Hervé Bourlard

Organization

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Sponsoring Projects and Institutions

Projects:

- Augmented Multiparty Interaction (AMI), http://www.amiproject.org
- Pattern Analysis, Statistical Modeling and Computational Learning (PASCAL), http://www.pascal-network.org
- Multi-modal Meeting Manager (M4), http://www.m4project.org
- Interactive Multimodal Information Management (IM2), http://www.im2.ch

Institutions:

- European Commission
- Swiss National Science Foundation, through the National Centres of Competence in Research (NCCR) program

Table of Contents

MLMI 2004

III Multimodal Processing

IV Speech Processing