

2014 4th Joint Workshop on Hands-free Speech Communication and Microphone Arrays

(HSCMA 2014)

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Program

Monday, May 12

Oral session 1

Ad-Hoc Microphone Array Calibration from Partial Distance Measurements

Mohammad J. Taghizadeh (Idiap Research Institute & EPFL, Switzerland); Afsaneh Asaei (Idiap Research Institute, Switzerland); Philip N. Garner (Idiap Research Institute, Switzerland); Herve Boulard (IDIAP, Switzerland)
pp. 1-5

Kernel spectrogram models for source separation

Antoine Liutkus (INRIA, Nancy Grand-Est, France); Zafar Rafii (Northwestern University, USA); Bryan Pardo (Northwestern University, USA); Derry FitzGerald (Dublin Institute of Technology, Ireland); Laurent Daudet (Université Paris Diderot, France)
pp. 6-10

Supervised non-Euclidean sparse NMF via bilevel optimization with applications to speech enhancement

Pablo Sprechmann (Duke University, USA); Alex Bronstein (Tel Aviv University, Israel); Guillermo Sapiro (Duke University, USA)
pp. 11-15

Content-adaptive speech enhancement by sparsely-activated dictionary plus low rank decomposition

Zhuo Chen (Columbia University, USA); Hélène Papadopoulos (Laboratoire des Signaux et Systèmes CNRS-SUPELEC-Univ Paris-Sud, France); Daniel P W Ellis (Columbia University, USA)
pp. 16-20

Poster / demo session 1

The self-taught vocal interface

Jort Gemmeke (KU Leuven, Belgium)
pp. 21-22

Speech dereverberation with multi-channel linear prediction and sparse priors for the desired signal

Ante Jukić (University of Oldenburg, Germany); Toon van Waterschoot (KU Leuven, Belgium); Timo Gerkmann (University of Oldenburg, Germany); Simon Doclo (University of Oldenburg, Germany)
pp. 23-26

Transient Noise Reduction Using Nonnegative Matrix Factorization

Nasser Mohammadiha (University of Oldenburg, Germany); Simon Doclo (University of Oldenburg, Germany)
pp. 27-31

A fast phoneme recognition system based on sparse representation of test utterances

Armin Saeb (Islamic Azad University, Shahre Ray Branch, Iran); Farbod Razzazi (Islamic Azad University, Science and Research Branch, Iran); Massoud Babaie-Zadeh (Sharif University of Technology, Iran)
pp. 32-36

Discriminative Tensor Dictionaries and Sparsity for speaker Identification

Syed Zubair (University of Surrey & International Islamic University Islamabad Pakistan, United Kingdom); Wenwu Wang (University of Surrey, United Kingdom); Jonathon A Chambers (Loughborough University, United Kingdom)
pp. 37-41

Far-field Criterion for Spherical Microphone Arrays and Directional Sources

Hai Morgenstern (Ben-Gurion University of the Negev, Israel); Boaz Rafaely (Ben-Gurion University of the Negev, Israel)

pp. 42-46

Adaptive Interference Rejection Using Generalized Sidelobe Canceller in Spherical Harmonics Domain

Jounghoon Beh (University of Maryland, College Park, USA); Dmitry Zotkin (University of Maryland, College Park, USA); Ramani Duraiswami (University of Maryland, USA)
pp. 47-51

Adaptive Beamformer for Spherical Eigenbeamforming Microphone Arrays

Gary W Elko (mh Acoustics LLC, USA); Jens Meyer (MH Acoustics LLC, USA)
pp. 52-56

Methods to Learn Bank of Filters Steering Nulls toward Potential Positions of a Target Source

Jiri Malek (Technical University of Liberec, Czech Republic); David Botka (Technical University of Liberec, Czech Republic); Zbynek Koldovsky (Technical University of Liberec, Czech Republic); Sharon Gannot (Bar-Ilan University, Israel)
pp. 57-61

Tuning Methodology for Speech Enhancement Algorithms using a Simulated Conversational Database and Perceptual Objective Measures

Daniele Giacobello (Beats Electronics, USA); Jason Wung (Beats Electronics, LLC & Georgia Institute of Technology, USA); Ramin Pichevar (Beats Electronics LLC, USA); Joshua Atkins (Beats Electronics, USA)
pp. 62-66

Improved Hands-free Automatic Speech Recognition in Reverberant Environment Condition

Randy Gomez (Honda Research Institute Japan Co., Ltd., Japan); Keisuke Nakamura (Honda Research, Japan); Takeshi Mizumoto (HRI-JP, Japan); Kazuhiro Nakadai (Honda Research Institute Japan Co., Ltd. & Tokyo Institute of Technology, Japan)
pp. 67-71

Tuesday, May 13

Oral session 2

Multiple Acoustic Sources Localization using Distributed Expectation-Maximization Algorithm

Yuval Dorfan (Bar-Ilan University, Israel); Gershon Hazan (Bar-Ilan University, Israel); Sharon Gannot (Bar-Ilan University, Israel)
pp. 72-76

Study of a Generalized Spherical Array Beamformer With Adjustable Binaural Reproduction

Michael Jeffet (Ben Gurion University of the Negev, Israel); Boaz Rafaely (Ben-Gurion University of the Negev, Israel)
pp. 77-81

Near-Field Source Localization using Spherical Microphone Array

Lalan Kumar (Indian Institute of Technology Kanpur & TCS, India); Kushagra Singhal (IIT Kanpur, India); Rajesh M Hegde (Indian Institute of Technology Kanpur, India)
pp. 82-86

Short-time Multichannel Noise Correlation Matrix Estimators for Acoustic Signals

Jonathan Blanchette (University of Ottawa, Canada); Martin Bouchard (University of Ottawa, Canada)
pp. 87-91

Divergence optimization in nonnegative matrix factorization with spectrogram restoration for multichannel signal separation

Daichi Kitamura (Nara Institute of Science and Technology, Japan); Hiroshi Saruwatari (Graduate School of Information Science, Nara Institute of Science and Technology, Japan); Satoshi Nakamura (Nara Institute of Science and Technology, Japan); Yu Takahashi (Yamaha Corporation, Japan); Kazunobu Kondo (Yamaha Corporation, Japan); Hirokazu Kameoka (The University of Tokyo, Japan)
pp. 92-96

Circular Microphone Array With Tangential Pressure Gradient Sensors

Falk-Martin Hoffmann (University of Southampton, United Kingdom); Filippo M Fazi (University of Southampton, United Kingdom)

pp. 97-101

Poster / demo session 2

A GPU-Accelerated Real-time Implementation of TRINICON-BSS for Multiple Separation Units

Craig Anderson (Victoria University, New Zealand); Stefan Meier (University Erlangen-Nuremberg, Germany); Walter Kellermann (University Erlangen-Nuremberg, Germany); Paul D Teal (Victoria University of Wellington, New Zealand); Mark Poletti (Callaghan Innovation, New Zealand)

pp. 102-106

An auxiliary-function approach to online independent vector analysis for real-time blind source separation

Toru Taniguchi (Toshiba Corporation & Corporate R&D Center, Japan); Nobutaka Ono (National Institute of Informatics, Japan); Akinori Kawamura (Toshiba Corporation, Japan); Shigeki Sagayama (University of Tokyo, Japan)

pp. 107-111

A comparison of different loudspeaker models to empirically estimated non-linearities

Leela Gudupudi (EURECOM, France); Christophe Beaugeant (Intel, France); Nicholas Evans (EURECOM, France); Moctar Mossi (INTEL, France); Ludovick Lepauloux (Intel Mobile Communications, France)

pp. 112-116

Spectrogram patch based acoustic event detection and classification in speech overlapping conditions

Miquel Espi (NTT Corporation, Japan); Masakiyo Fujimoto (NTT Corporation, Japan); Yotaro Kubo (NTT Corporation, Japan); Tomohiro Nakatani (NTT Corporation, Japan)

pp. 117-121

Theoretical analysis of biased MMSE short-time spectral amplitude estimator and its extension to musical-noise-free speech enhancement

Shunsuke Nakai (Nara Institute of Science and Technology, Japan); Hiroshi Saruwatari (Graduate School of Information Science, Nara Institute of Science and Technology, Japan); Ryoichi Miyazaki (Nara Institute of Science and Technology, Japan); Satoshi Nakamura (Nara Institute of Science and Technology, Japan); Kazunobu Kondo (Yamaha Corporation, Japan)

pp. 122-126

A Minimum Variance Beamformer for Spatially Distributed Microphones Using a Soft Reference Selection

Sebastian Stenzel (University of Applied Sciences Constance & Institute for System Dynamics (ISD), Germany); Juergen Freudenberger (University of Applied Sciences, Konstanz & Institute for System Dynamics (ISD), Germany); Gerhard Schmidt (CAU Kiel, Germany)

pp. 127-131

A hierarchical approach for the online, on-board detection and localisation of brake squeal using microphone arrays

Nilesh Madhu (NXP Software, Germany); Rainer Martin (Ruhr-University Bochum, Germany); Heinz-Werner Rehn (Volkswagen AG, Germany); Sebastian Gergen (Ruhr-Universität Bochum, Germany); Andreas Fischer (Volkswagen AG, Germany)

pp. 132-136

Spatial Aliasing Cancellation For Circular Microphone Array

David Alon (Ben-Gurion University of the Negev - Israel, Israel); Boaz Rafaely (Ben-Gurion University of the Negev, Israel)

pp. 137-141

Extraction of Pinna Spectral Notches in The Median Plane of a Virtual Spherical Microphone Array

Ankit Sohni (Indian Institute of Technology, Kanpur, India); Chaitanya Ahuja (Indian Institute of Technology Kanpur, India); Rajesh M Hegde (Indian Institute of Technology Kanpur, India)

pp. 142-146

Utilizing motion in humanoid robots to enhance spatial information recorded by microphone arrays

Vladimir Tourbabin (Ben-Gurion University of the Negev & Ben-Gurion University of the Negev, Israel); Boaz Rafaely (Ben-Gurion University of the Negev, Israel)
pp. 147-151

Self-localization of Wireless Acoustic Sensors in Meeting Rooms

Mikko Parviainen (Tampere University of Technology, Finland); Pasi Pertilä (Tampere University of Technology, Finland); Matti S Hämäläinen (Nokia Research Center, Finland)
pp. 152-156

Oral session 3

A speech event detection and localization task for multiroom environments

Alessio Brutti (Fondazione Bruno Kessler, Italy); Mirco Ravanelli (Fondazione Bruno Kessler (FBK), Italy); Piergiorgio Svaizer (Fondazione Bruno Kessler, Italy); Maurizio Omologo (Fondazione Bruno Kessler - irst, Italy)
pp. 157-161

Ensemble integration of calibrated speaker localization and statistical speech detection in domestic environments

Yuuki Tachioka (Mitsubishi Electric Corporation, Japan); Tomohiro Narita (Mitsubishi Electric, Japan); Shinji Watanabe (Mitsubishi Electric Research Laboratories, USA); Jonathan Le Roux (Mitsubishi Electric Research Laboratories, USA)
pp. 162-166

The Athena-RC System for Speech Activity Detection and Speaker Localization in the DIRHA Smart Home

Panagiotis Giannoulis (National Technical University of Athens + ATHENA-RC, Greece); Antigoni Tsiami (National Technical University of Athens + ATHENA-RC, Greece); Isidoros Rodomagoulakis (National Technical University of Athens, Greece); Athanasios Katsamanis (National Technical University of Athens, Greece); Gerasimos Potamianos (University of Thessaly, Greece); Petros Maragos (National Technical University of Athens, Greece)
pp. 167-171

Wednesday, May 14

Keynote 3

Neural networks for distant speech recognition

Steve Renals (University of Edinburgh, United Kingdom); Pawel Swietojanski (The University of Edinburgh, United Kingdom)
pp. 172-176

Oral session 4

Efficient Training of Acoustic Models for Reverberation-Robust Medium-Vocabulary Automatic Speech Recognition

Armin Sehr (Beuth Hochschule für Technik Berlin, Germany); Hendrik Barfuss (University of Erlangen-Nuremberg, Germany); Christian Hofmann (University of Erlangen-Nuremberg, Germany); Roland Maas (University of Erlangen-Nuremberg, Germany); Walter Kellermann (University Erlangen-Nuremberg, Germany)
pp. 177-181

Optimized Joint Noise Suppression and Dereverberation based on Blind Signal Extraction for Hands-Free Speech Recognition System

Fine Aprilyanti (Nara Institute of Science and Technology, Japan); Hiroshi Saruwatari (Graduate School of Information Science, Nara Institute of Science and Technology, Japan); Satoshi Nakamura (Nara Institute of Science and Technology, Japan); Tomoya Takatani (Toyota Motor Corporation, Japan)
pp. 182-186

Word Boundary Agreement To Combine Multi-Microphone Hypotheses In Distant Speech Recognition

Cristina M. Guerrero (Fondazione Bruno Kessler & University of Trento, Italy); Maurizio Omologo (Fondazione Bruno Kessler - irst, Italy)
pp. 187-191

Investigating Stranded GMM for Improving Automatic Speech Recognition

Arseniy Gorin (INRIA-LORIA, France); Denis Jouviet (INRIA & LORIA, France); Emmanuel Vincent (Inria Nancy - Grand Est, France); Dung Tran (INRIA/LORIA, France)
pp. 192-196

Exploring deep neural networks and deep autoencoders in reverberant speech recognition

M. Mimura (Kyoto University, Japan); Shinsuke Sakai (Kyoto University, Japan); Tatsuya Kawahara (Kyoto University, Japan)
pp. 197-201