

ALESSIO BRUTTI

CURRICULUM VITAE

PERSONAL INFORMATION

Address

Date and Place of Birth

Nationality

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<https://ict.fbk.eu/people/detail/alessio-brutti-fbk-speech-processing/>

EDUCATION

- (2003 –2007) Ph.D. in Information and Communication Technologies
Università degli Studi di Trento, DIT-ICT school.
- (1996 - 2001) M.Sc. in Telecommunication Engineering
- Università degli Studi di Padova.

RESEARCH EXPERIENCES

- (January 2021 – currently) head of the SpeechTek research unit at Fondazione Bruno Kessler (Trento, Italy)
- (April 2003 – December 2020) tenured researcher at Fondazione Bruno Kessler (Trento, Italy)

Main research interests are:

- multi-channel speech and audio processing
- speech enhancement/robust ASR
- speaker recognition/diarization
- sound event detection
- audio-video processing for target tracking and identification

Further details: <https://ict.fbk.eu/people/detail/alessio-brutti-fbk-speech-processing/>

Recent EU-funded research projects:

- DIRHA: distant speech interfaces for home automation
- SCENIC: self-configuring environment-aware intelligent acoustic sensing
- DICIT: distant-talking interfaces for control of interactive TV
- CHIL: computer in the human loop

- (June 2015 – Sep. 2015) visiting researcher at Queen Mary University London:
 - audio visual person re-identification on wearable cameras
- (June 2019 – July 2019) invited senior member at the JHU Jelinek Summer Workshop
 - “Using Cooperative Ad-hoc Microphone Arrays for ASR”
- PhD committee/reviewer for:
 - Tampere University of Technology
 - Vrije University Brussels
 - Universidad Alcala’ de Hernanes

TEACHING EXPERIENCES

- (February 2007 – currently) Libera Università di Bolzano: teaching assistant for the courses:
 - “Information Systems and Data Management”;
 - “Computer Science and Information Processing”;
 - “Introduction to Information Science”.
 - “Speech Technology Lab”.
- (February 2014 – September 2014) Università degli studi di Trento: teaching assistant for the course “Audio Signal Processing” - Department of Information Engineering and Computer Science.
- (October 2004 - February 2005) Università degli Studi di Trento: tutoring activity for working student for the course “Algorithms and Data Structures” of the Computer Science Bachelor Degree.

OTHER WORKING EXPERIENCE

- (February 2002 – April 2003) Società Trasporto Telematico S.p.A. in Verona: **technical specialist** on private phone networks (VoiP and Call Center) and Local Area Networks (WLAN).

PUBLICATIONS (up to Dec 2020)

Journal papers:

- G. Cerutti, R. Prasad, A. Brutti, Elisabetta Farella, “Compact recurrent neural networks for acoustic event detection on low-energy low-complexity platforms”, IEEE Journal on Selected Topics on Signal Processing, 2020
- V. Rajan, A. Brutti, A. Cavallaro, “ConflictNET: End-to-End Learning for Speech-based Conflict Intensity Estimation”, IEEE Signal Processing Letters, 2019.
- X. Qian, A. Brutti, O. Lanz, M. Omologo, A. Cavallaro, “Multi-speaker tracking from an audio-visual sensing device”, IEEE Transactions on Multimedia, 2019
- A. Brutti, A. Cavallaro, “On-line cross-modal adaptation for audio-visual person identification with wearable cameras”, IEEE Transactions on Human-Machine Systems, 2016
- A. Brutti, M. Matassoni, “On the relationship between Early-to-Late Ratio of Room Impulse Responses and ASR performance in reverberant environments”, Speech Communication, September 2015
- A. Brutti, F. Nesta, “Tracking of multidimensional TDOA for multiple sources with distributed microphone pairs”, Computers, Speech and Languages, Volume 27, Issue 3, May 2013
- A. Brutti, P. Svaizer, M. Omologo, “An Environment aware ML estimation of acoustic radiation pattern with distributed microphone pairs”, Signal Processing, Volume 93, Issue 4, April 2013
- A. Brutti, L. Cristoforetti, W. Kellermann, L. Marquardt and M. Omologo, “WOZ Acoustic Data Collection For Interactive TV”, Language Resources and Evaluation Journal, Special Issue LREC2008, Volume 44, Issue 3, September 2010
- A. Brutti, M. Omologo and P. Svaizer, “Multiple Source Localization based on Acoustic Map De-Emphasis”, EURASIP, Journal on Audio, Speech, and Music Processing, 2010

Conferences, Workshops and Book Chapters:

- E. Fini and A. Brutti. “Supervised online diarization with sample mean loss for multi-domain data”, ICASSP 2020
- G. Cerutti, R. Prasad, A. Brutti, E. Farella, “Neural Network Distillation on IoT Platforms for Sound Event Detection”, Interspeech 2019
- O. Lanz, A. Brutti, A. Xompero, X. Qian, M. Omologo, A. Cavallaro, “Accurate target annotation in 3D from multimodal streams”, ICASSP, 2019
- A. Cavallaro and A. Brutti, “Chapter 5: Audio-visual learning for body-worn cameras”, in Edited Book “Multimodal Behaviour Analysis in the Wild”, Editors, X. Alameda-Pineda, N. Sebe, E. Ricci, Elsevier, 2018.

P. Pertilä, A. Brutti, P. Svaizer, and M. Omologo, "Multichannel Source Activity Detection, Localization, and Tracking", in Edited Book "Audio Source Separation and Speech Enhancement", Editors, E. Vincent, T. Virtanen, S. Gannot, Wiley, 2018.

X. Qian, A. Xompero, A. Brutti, O. Lanz, M. Omologo, A. Cavallaro, "3D MOUTH TRACKING FROM A COMPACT MICROPHONE ARRAY CO-LOCATED WITH A CAMERA", ICASSP, 2018

A. Brutti, A. Cavallaro, "Unsupervised cross-modal deep-model adaptation for audio-visual re-identification with wearable cameras", ICCV Workshop CVAVM, 2017

M. Matassoni, A. Brutti, D. Falavigna, "Optimizing DNN adaptation for recognition of enhanced speech", Interspeech 2017

X. Qian, A. Brutti, M. Omologo, A. Cavallaro, "3D Audio-visual Speaker Tracking with an Adaptive Particle Filter", ICASSP 2017

P. Pertila, A. Brutti, "Increasing the environment-awareness of rake beamforming for directive acoustic sources", IWAENC 2016

A. Brutti, A. Tsiami, N. Katsamanis, P. Maragos, "A Phase-Based Time-Frequency masking for multi-channel speech enhancement in domestic environments", Interspeech, 2016

A. Brutti, A. Abad, "Multi-channel i-vector combination for robust speaker verification in multi-room domestic environments", Speaker Odyssey, 2016

J. Correia, A. Brutti, A. Abad, "Multi-channel speaker verification based on total variability modelling", Interspeech 2015

P. Giannoulis et al. "Multi-room speech activity detection using a distributed microphone network in domestic environments", EUSIPCO 2015

A. Brutti, M. Matassoni, "On the use of Early-to-Late Reverberation Ratio for ASR in reverberant environments", ICASSP 2014

A. Brutti, M. Ravanelli, P. Svaizer and M. Omologo, "A speech event detection and localization task for multiroom environments", HSCMA 2014

M. Matassoni, A. Brutti, P. Svazier, "Acoustic modeling based on Early-to-Late Reverberation Ratio for robust ASR", IWAENC 2014

A. Brutti, M. Omologo, "Geometric Contamination for GMM/UBM speaker verification in reverberant environments", Interspeech 2013

P. Svaizer, A. Brutti, M. Omologo, "Environment Estimation of the Orientation of Acoustic Sources using a Line Array", EUSIPCO 2012

A. Brutti, P. Svaizer, M. Omologo, "Maximum A Posteriori Trajectory Estimation for Acoustic Source Tracking", IWAENC 2012

F. Nesta and A. Brutti, "Self-clustering non-Euclidean kernels for improving the estimation of multidimensional TDOA of multiple sources", HSCMA 2011

P. Svaizer, A. Brutti, M. Omologo, "Use of reflected wavefronts for acoustic source localization with a line array", HSCMA 2011

A. Brutti, M. Omologo and P. Svaizer, "Inference of Acoustic Source Directivity Using Environment Awareness", EUSIPCO 2011

A. Brutti and F. Nesta, "Multiple Source Tracking by Sequential Posterior Kernel Density Estimation Through GSCT", EUSIPCO 2011

A. Brutti and O. Lanz, "A joint particle filter to track the position and head orientation of people using audio visual cues", EUSIPCO 2010

P. Svaizer, A. Brutti, M. Omologo, "Analysis of reflected wavefronts by means of a line microphone array", IWAENC 2010

A. Brutti, M. Omologo, P. Svaier, "A Sequential Monte Carlo Approach for Tracking of Overlapping Acoustic Sources", EUSIPCO 2009

L. Marquardt, P. Svaizer et al., "A natural acoustic front-end for Interactive TV in the EU-Project DICIT", Pacific Rim Conference 2009

A. Brutti, M. Omologo, P. Svaizer, "Localization of multiple speakers based on a two step acoustic map analysis", IEEE ICASSP 2008, March 30-April 4, Las Vegas, USA.

A. Brutti, M. Omologo, P. Svazier, "Comparison between different sound source localization techniques based on a real data collection", HSCMA, May 2008, Trento

A. Brutti, L. Cristoforetti et al, "WOZ acoustic Data Collection For Interactive TV", LREC 2008, May, Marrakech, Morocco.

A. Brutti, M. Omologo, P. Svaizer, "Classification of Acoustic Maps to determine speaker position and orientation from a distributed microphone network", ICASSP 2007, April 15-19, Honolulu, Hawaii, USA.

A. Brutti, M. Omologo, P. Svaizer, "Localizzazione di parlatori con una rete distribuita di microfoni", 34 Convegno AIA, June 13-15, Firenze, Italy

A. Brutti, M. Omologo, P. Svaizer, "A PATTERN CLASSIFICATION APPROACH TO SOUND SOURCE LOCALIZATION", Workshop Toni Mian, Padova, October 2007

A. Brutti, M. Omologo, P.G. Svaizer, "Estimation of talker's head orientation based on Oriented Global Coherence Field", 120th Audio Engineering Society, May 20-23, 2006, Paris.

A. Brutti, M. Omologo, P.G. Svaizer, "Speaker Localization based on Oriented Global Coherence Field", Interspeech 2006, September 17-21, 2006, Pittsburgh, Pennsylvania, USA.

A. Brutti, M. Omologo, P.G. Svaizer, "Oriented global coherence field for the estimation of the head orientation in smart rooms equipped with distributed microphone arrays". Eurospeech 2005, Lisboa.

M. Omologo, P.G. Svaizer, A. Brutti, L. Cristoforetti, "Speaker Localization in CHIL lectures: Evaluation Criteria and Results". MLMI/NIST Evaluation 2005, Edimburgh.

Other publications:

PhD Thesis: "Distributed Microphone Networks for Sound Source Localization in Smart Rooms", Trento, March 2007

A. Brutti and O. Lanz, "An Audio-Visual Particle Filter for Monitoring Interactive People Behaviour", PRAI*HBA, December 2009, Reggio Emilia.

A. Brutti, "A Person tracking system for CHIL meetings", CLEAR 2007, Baltimore, USA, April 2007

R. Brunelli, A. Brutti, P. Chippendale, O. Lanz, M. Omologo, P. Svaizer, F. Tobia, "A Generative Approach to Audio-Visual Person Tracking", CLEAR'06 Evaluation Workshop, April 6-7, 2006, Southampton, UK.

A. Brutti, M. Omologo et al., "On The Development of an In-Car interaction system at IRST", SWIM, Maui Hawaii, January, 12-14 2004.

A. Brutti, M. Omologo et al., "Use of Multiple Speech Recognition Units in a In-car Assistance System", invited contribution, chapter 6, in "DSP for Vehicle and Mobile Systems", Kluwer publishers.

Trento, 08/01/2021

FIRMATO IN ORIGINALE