

# Curriculum Vitae

## Personal Information

First Name: **Paolo**  
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Place of birth: Novara (Italy)  
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## Education

01/2011 – 02/2014 **PhD in Information Technology** at the Politecnico di Milano, Italy  
*Thesis:* Reverse engineering of video content for forensic analyses  
*Supervisor:* Prof. A. Sarti  
*Final grade:* cum laude and “European PhD Label”

09/2008 – 12/2010 **MSc in Telecommunication Engineering** at the Politecnico di Milano, Italy  
*Thesis:* A geometric approach to localization of acoustic sources and reflectors  
*Supervisor:* Prof. A. Sarti  
*Final grade:* 110 cum laude / 110

07/2005 – 07/2008 **BSc in Telecommunication Engineering** at the Politecnico di Milano, Italy  
*Thesis:* Transmission power control for low consumption wireless systems  
*Supervisor:* Prof. U. Spagnolini  
*Final grade:* 110 cum laude / 110

## Professional Experience

Since 07/2016 **Assistant Professor** at the Department of Electronics, Information and Bio-engineering at the Politecnico di Milano, Italy

02/2014 – 06/2016 **Post-doc researcher** at the Department of Electronics, Information and Bio-engineering at the Politecnico di Milano, Italy

## Other Duties

2018 **Track Chair** (Signal and image processing applications) for the **European Signal Processing Conference (EUSIPCO) 2018**.

2017-2018 **Co-organizer** of the **IEEE Signal Processing Cup 2018** (Forensic Camera Model Identification Challenge)

Since 2017 **Member** of the **IEEE Information Forensics and Security Technical Committee** (elected)

Since 2012 **Reviewer** for several international signal processing journals and conferences in forensics, multimedia, and acoustic signal processing tracks (IEEE Transactions on Circuits and Systems for Video Technology, IEEE Transactions on Information

Forensics and Security, IEEE Journal of Selected Topics in Signal Processing, IET Information Security, Springer Multimedia Systems, Elsevier Journal of Visual Communication and Image Representation, Elsevier Signal Processing: Image Communication, Elsevier Forensic Science International, IEEE ICASSP, IEEE ICIP, IEEE MMSP, IEEE WIFS, IEEE ICME, EUSIPCO).

### International Collaborations

- 06/2017 – 09/2017 Visiting scholar at the **Purdue University, USA** (Viper Lab directed by Prof. E. J. Delp)
- Since 2013 A strong collaboration with Prof. Anderson Rocha (Institute of Computing, **University of Campinas, Brazil**) has led to the co-supervision of two visiting PhD students that spent almost one year each at Politecnico di Milano
- 08/2012 – 12/2012 Visiting PhD Student at the **Imperial College London, UK**, under the supervision of Prof. P. L. Dragotti

### Teaching Experience

- AY 2017/2018 **Lecturer** for the course “Multimedia Signal Processing - 2<sup>nd</sup> Module”, M.Sc. in Computer Engineering and Telecommunication Engineering, Politecnico di Milano, Italy  
**Lecturer** for the course “Audio Signals”, M.Sc. in Computer Engineering and Telecommunication Engineering, Politecnico di Milano, Italy
- AY 2016/2017 **Lecturer and Teaching Assistant** for the course “Multimedia Signal Processing - 2<sup>nd</sup> Module”, M.Sc. in Computer Engineering, Politecnico di Milano, Italy
- AY 2015/2016 **Lecturer and Teaching Assistant** for the course “Multimedia Signal Processing - 2<sup>nd</sup> Module”, M.Sc. in Computer Engineering, Politecnico di Milano, Italy
- AY 2012/2013 **Teaching Assistant** for the course “Sound Analysis, Synthesis and Processing”, M.Sc. in Computer Engineering, Politecnico di Milano, Italy (Prof. A. Sarti)
- AY 2010/2011 **Teaching Assistant** for the course “Sound Analysis, Synthesis and Processing”, M.Sc. in Computer Engineering, Politecnico di Milano, Italy (Prof. A. Sarti)

### (Co-)supervision of Graduate Students

- AY 2016/2017 **MSc Thesis** in Computer Science Engineering at the Politecnico di Milano, Italy  
*Student:* N. Bonettini  
*Thesis:* JPEG-based forensics through convolutional neural networks  
*Supervisor:* Prof. P. Bestagini
- AY 2013/2014 **MSc Thesis** in Mathematical Engineering at the Politecnico di Milano, Italy  
*Student:* L. Gaborini  
*Thesis:* Image tampering detection and localization  
*Supervisor:* Prof. S. Tubaro
- AY 2011/2012 **MSc Thesis** in Computer Science Engineering at the Politecnico di Milano, Italy  
*Students:* L. Albonico, A. Paganini  
*Thesis:* Feature based classification for audio bootleg detection  
*Supervisor:* Prof. A. Sarti
- AY 2011/2012 **MSc Thesis** in Computer Science Engineering at the Politecnico di Milano, Italy  
*Student:* S. Battaglia  
*Thesis:* Detection of motion interpolation in video sequences  
*Supervisor:* Prof. M. Tagliasacchi

AY 2010/2011      **MSc Thesis** in Computer Science Engineering at the Politecnico di Milano, Italy  
*Student:* A. Panichella  
*Thesis:* Bitrate change identification through no-reference quality metrics  
*Supervisor:* Prof. M. Tagliasacchi

## **Research Activities**

The main topic of my research is signal processing since the beginning of my career. More specifically, my research activity focuses on the development of algorithms and techniques for the analysis and processing of signals of different nature (i.e., audio, images and videos). In particular, my main research areas are: i) acoustic signal processing; ii) multimedia forensics signal processing. In the former area, I mostly focus on array signal processing methods. In the latter area, I mostly focus on blind multimedia forensics techniques for integrity verification, authentication and phylogeny reconstruction. Working on different kinds of signals of complementary nature allowed me to apply concepts developed in one area also to other one, e.g., application of audio-based techniques to forensic problems.

### **Acoustic Signal Processing**

Acoustic source localization has been a leading research topic in the audio and acoustics communities for quite a few decades [C2, C3]. This research theme has gained particular attention in the past twenty years as applications to teleconferencing and hands-free communications, as well as distributed sensor networks have become commonplace. For this reason, a wide range of techniques has been presented in the literature. Among these, methodologies based on Time Differences of Arrivals (TDOAs) measurements taken with microphone arrays have proved robust against reverberations and environmental noise.

To this purpose, we developed novel source localisation techniques using multiple arrays based on a geometric interpretation of sound propagation. More specifically in [J1] we tackled the case of 2D localisation for unsynchronized microphone arrays, presenting two different algorithms that can be fruitfully used to make the most out of TDOA measurements performed separately from each single array. Moreover, we also derived an estimator for the localization error based on the knowledge of the array geometry and the measurement error. This led to the development of a Matlab toolbox available online. In [J2], one source localisation method developed in [J1] has been extended to enable 3D localisation. Moreover, we presented a complete source localisation system that also embeds a TDOA disambiguation methodology and an outlier removal procedure. In [J3] we showed that a geometric interpretation of well-known state-of-the-art localisation algorithms is also possible. To this purpose, we presented a multidimensional framework where both spatial and temporal coordinates are considered.

Working with multiple microphone arrays requires knowing the relative positioning of each array in the space. By exploiting concepts from the computer vision literature, we also addressed the problem of self-calibrating multiple acoustic cameras in [C1]. This is a fundamental step for all the aforementioned source localisation algorithms.

### **Multimedia Forensics**

With the rapid proliferation of inexpensive acquisition and storage devices multimedia objects can be easily created, stored, transmitted, modified and tampered with by anyone. During its lifetime, a digital object might go through several processing stages, including multiple analog-to-digital (A/D) and digital-to-analog (D/A) conversions, coding and decoding, transmission, editing (either aimed at enhancing the quality, creating new contents mixing pre-existing materials, or tampering with the content). Each of these processing steps necessarily leaves a characteristic footprint, which can be potentially detected to trace back the past history of the available multimedia object in a blind fashion, i.e., without having access to the original content.

Blind forensic techniques can be applied to any media, i.e., audio [C12, C13, C18], images [C15, C19] and, more recently, video [C5, J2]. As an example, with specific regard to video, in [C4, C8] we showed how to detect the first codec used in a double encoded video, while in [C6] we showed how to detect how many compression steps have been applied. In [C7, C10] we focused on detecting video tampering attacks such as object insertion or video splicing. Finally, in [C9] we showed how to distinguish between original and recaptured videos. Notice that the knowledge of traces left by processing operations can be also used to study specific attacks to multimedia content [C11, C14] and for authentication purpose [C24].

As the diffusion of user-generated content has determined the possibility of jointly analysing near-duplicate copies of the same object (e.g., slightly modified versions of the same image), the phylogenetic analysis of

images [C17, C22, C23] and videos [C16, C20, C21] has also proved to be a research area of paramount interest with direct application in security, law and copyright enforcement, and news tracking services.

As convolutional neural networks (CNNs) recently gained the trend in many image processing scenarios, we also focused on developing CNN-based technique specifically tailored to forensic problems. In particular, we deeply investigated camera model attribution.

### Research Projects

Acronym	Funding scheme	Title	Period	Role
MEDIFOR	DARPA-funded	Media Forensics Integrity Analytics	2016-Ongoing	Co-Principal Investigator
PoliMIne	Polisocial Award	Humanitarian Demining GPR System	2016-Ongoing	Project Manager
REWIND	FP7-ICT-2009-C FET-Open	REVers engineering of audio-VIsual coNtent Data	2011-2014	Scientific Investigator
SCENIC	FP7-ICT-2009-C FET-Open	Self-Configuring Environmental-aware Intelligent aCoustic sensing	2010-2011	Scientific Investigator

### Seminars

- S5 P. BESTAGINI, "**Reverse engineering of video content for forensic analysis**", Notre Dame (Indiana), USA, October 2016
- S4 P. BESTAGINI, "**Detection and alignment of near-duplicate videos for original sequence reconstruction**", GTTI Thematic Meeting on Multimedia Signal Processing, Forni di Sopra (UD), Italy, February 2014
- S3 P. BESTAGINI, "**Video re-capture detection for forensic analysis**", Communication and Signal Processing Group, Imperial College London, United Kingdom, December 2012
- S2 P. BESTAGINI, "**Localization of acoustic sources through the fitting of propagation cones using multiple independent arrays**", Dipartimento di Elettronica e Informazione (Department of Electronics and Information), Politecnico di Milano, Italy, July 2012
- S1 P. BESTAGINI, "**A geometric approach to localization of acoustic sources**", Sound and Music Computing Lab, Politecnico di Milano (Como Campus), Italy, February 2011

### Awards

- A5 **Sadaoki Furui Prize Paper Award** for the paper "An overview on video forensics", APSIPA Transactions on Signal and Information Processing, 2016
- A4 **EUVIP Best Student Paper Award** for the work "Image phylogeny through dissimilarity metrics fusion", Paris, France, 2014
- A3 **MMSP 2013 Top-10% Paper Award** for the work "Local tampering detection in video sequences", Pula, Italy, 2013
- A2 **GTTI-MMSP 2013 Best Demo Award** for the work "Video recapture detection based on ghosting artifacts Analysis", Vezza D'Oglio, Italy, 2013
- A1 **MMSP 2012 Top-10% Paper Award** for the work "Multiple compression detection for video sequences", Banff, Canada, 2012

## Scientific Publications

H-index: 15; i10-index: 22; 745 citations (source: Google Scholar)

### International Journals

- J10 M. Barni, L. Bondi, N. Bonettini, P. Bestagini, A. Costanzo, M. Maggini, B. Tondi, S. Tubaro, “**Aligned and Non-Aligned Double JPEG Detection Using Convolutional Neural Networks**”, Journal of Visual Communication and Image Representation, 2017
- J9 M. Compagnoni, A. Pini, A. Canclini, P. BESTAGINI, F. Antonacci, S. Tubaro, A. Sarti, “**A Geometrical-Statistical approach to outlier removal for TDOA measurements**”, IEEE Transactions on Signal Processing, 2017
- J8 A. Ferreira, L. Bondi, L. Baroffio, P. BESTAGINI, J. Huang, J. A. dos Santos, S. Tubaro, A. Rocha, “**Data-Driven Feature Characterization Techniques for Laser Printer Attribution**”, IEEE Transactions on Information Forensics and Security, 2017
- J7 L. Bondi, L. Baroffio, D. Guera, P. BESTAGINI, E. J. Delp, S. Tubaro, “**First Steps Towards Camera Model Identification with Convolutional Neural Networks**”, IEEE Signal Processing Letters, vol. 24, n. 3, pp. 259-263, 2017
- J6 P. BESTAGINI, S. Milani, M. Tagliasacchi, S. Tubaro, “**Codec and GOP Identification in Double Compressed Videos**”, IEEE Transactions on Image Processing, vol. 25, no. 5, pp.2298-2310, 2016
- J5 M. Compagnoni, A. Canclini, P. BESTAGINI, F. Antonacci, A. Sarti, S. Tubaro, “**Source Localization and Denoising: a Perspective from the TDOA Space**”, Multidimensional Systems and Signal Processing, 2016
- J4 A. Canclini, P. BESTAGINI, F. Antonacci, A. Sarti, S. Tubaro, “**A Robust and Low-Complexity Source Localization Algorithm for Asynchronous Distributed Microphone Networks**”, IEEE/ACM Transactions on Audio, Speech, and Language Processing, vol. 23, pp. 1563-1575, 2015
- J3 P. BESTAGINI, M. Compagnoni, F. Antonacci, A. Sarti, S. Tubaro, “**TDOA-based acoustic source localization in the space-range reference frame**”, Multidimensional Systems and Signal Processing, vol. 25, pp. 337-359, 2014
- J2 S. Milani, M. Fontani, P. BESTAGINI, M. Barni, A. Piva, M. Tagliasacchi, S. Tubaro, “**An overview on video forensics**”, APSIPA Transactions on Signal and Information Processing, vol. 1, pp. e2, 2012
- J1 M. Compagnoni, P. BESTAGINI, F. Antonacci, A. Sarti, S. Tubaro, “**Localization of acoustic sources through the fitting of propagation cones using multiple independent arrays**”, IEEE Transactions on Audio, Speech, and Language Processing, vol. 20, pp.1964-1975, 2012

### International Conferences

- C46 S. Verde, L. Bondi, P. Bestagini, S. Milani, G. Calvagno, S. Tubaro, “**Video Codec Forensics Based on Convolutional Neural Networks**”, IEEE International Conference on Image Processing (ICIP), Athens, Greece, 2018
- C45 S. Mandelli, D. Cozzolino, P. Bestagini, L. Verdoliva, S. Tubaro, “**Blind Detection and Localization of Video Temporal Splicing Exploiting Sensor-Based Footprints**”, European Signal Processing Conference (EUSIPCO), Rome, Italy, 2018
- C44 N. Bonettini, L. Bondi, D. Güera, S. Mandelli, P. Bestagini, S. Tubaro, E. J. Delp, “**Fooling PRNU-Based Detectors Through Convolutional Neural Networks**”, European Signal Processing Conference (EUSIPCO), Rome, Italy, 2018

- C43 F. Picetti, G. Testa, F. Lombardi, P. Bestagini, M. Lualdi, S. Tubaro, “**Convolutional Autoencoder for Landmine Detection on GPR Scans**”, IEEE International Conference on Telecommunications and Signal Processing (TSP), Athens, Greece, 2018
- C42 S. Mandelli, N. Bonettini, P. Bestagini, V. Lipari, S. Tubaro, “**Multiple JPEG compression detection through task-driven non-negative matrix factorization**”, IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP), Calgary, Canada, 2018
- C41 D. Güera, S. K. Yarlagadda, P. Bestagini, F. Zhu, S. Tubaro, E. J. Delp, “**Reliability Map Estimation For CNN-Based Camera Model Attribution**”, IEEE Winter Conference on Applications of Computer Vision (WACV), Lake Tahoe, NV, 2018
- C40 S. Yarlagadda, D. Güera, P. Bestagini, F. Zhu, S. Tubaro, E. J. Delp, “**Satellite Image Forgery Detection and Localization Using GAN and One-Class Classifier**”, IS&T International Symposium on Electronic Imaging (EI), Burlingame, CA, 2018
- C39 L. Bondi, F. Pérez-González, P. Bestagini, S. Tubaro, “**Design of Projection Matrices for PRNU Compression**”, IEEE Workshop on Information Forensics and Security (WIFS), Rennes, France, 2017
- C38 S. Verde, S. Milani, P. Bestagini, S. Tubaro, “**Audio Phylogenetic Analysis using Geometric Transforms**”, IEEE Workshop on Information Forensics and Security (WIFS), Rennes, France, 2017
- C37 P. Bestagini, V. Lipari, S. Tubaro, “**A Machine Learning Approach to Facies Classification Using Well Logs**”, Society of Exploration Geophysicists International Exposition and Annual Meeting (SEG), Houston, USA, 2017
- C36 S. Mandelli, L. Bondi, S. Lameri, V. Lipari, P. Bestagini, S. Tubaro, “**Inpainting-Based Camera Anonymization**”, IEEE International Conference on Image Processing (ICIP), Beijing, China, 2017
- C35 S. Lameri, L. Bondi, P. Bestagini, S. Tubaro, “**Near-Duplicate Video Detection Exploiting Noise Residual Traces**”, IEEE International Conference on Image Processing (ICIP), Beijing, China, 2017
- C34 J. Brogan, P. Bestagini, A. Bharati, A. Pinto, D. Moreira, K. Bowyer, P. Flynn, A. Rocha, W. Scheirer, “**Spotting the Difference: Context Retrieval and Analysis for Improved Forgery Detection and Localization**”, IEEE International Conference on Image Processing (ICIP), Beijing, China, 2017
- C33 S. Lameri, F. Lombardi, P. Bestagini, M. Lualdi, S. Tubaro, “**Landmine Detection from GPR Data Using Convolutional Neural Networks**”, European Signal Processing Conference (EUSIPCO), Kos, Greece, 2017
- C32 S. Milani, P. Bestagini, S. Tubaro, “**Video Phylogeny Tree Reconstruction Using Aging Measures**”, European Signal Processing Conference (EUSIPCO), Kos, Greece, 2017
- C31 L. Bondi, S. Lameri, D. Güera, P. Bestagini, E. J. Delp, S. Tubaro, “**Tampering Detection and Localization through Clustering of Camera-Based CNN Features**”, IEEE Conference on Computer Vision and Pattern Recognition Workshop (CVPRW), Honolulu, USA, 2017
- C30 D. Güera, Y. Wang, L. Bondi, P. Bestagini, S. Tubaro, E. J. Delp, “**A Counter-Forensic Method for CNN-Based Camera Model Identification**”, IEEE Conference on Computer Vision and Pattern Recognition Workshop (CVPRW), Honolulu, USA, 2017
- C29 M. Zanoni, S. Lusardi, P. BESTAGINI, A. Canclini, A. Sarti, S. Tubaro, “**Efficient Music Identification Approach Based on Local Spectrogram Image Descriptors**”, AES Convention, Berlin, Germany, 2017
- C28 L. Bondi, D. Guera, L. Baroffio, P. BESTAGINI, E. J. Delp, S. Tubaro, “**A Preliminary Study on Convolutional Neural Networks for Camera Model Identification**”, IS&T

- Electronic Imaging (EI), San Francisco, USA, 2017
- C27 F. Costa, S. Lameri, P. BESTAGINI, Z. Dias, S. Tubaro, A. Rocha, "**Hash-Based Frame Selection for Video Phylogeny**", IEEE International Workshop on Information Forensics and Security (WIFS), Abu Dhabi, UAE, 2016
- C26 S. Milani, P. BESTAGINI, S. Tubaro, "**Phylogenetic analysis of near-duplicate and semantically-similar images using viewpoint localization**", IEEE International Workshop on Information Forensics and Security (WIFS), Abu Dhabi, UAE, 2016
- C25 S. Lameri, P. BESTAGINI, S. Tubaro, "**Video alignment for phylogenetic analysis**", European Signal Processing Conference (EUSIPCO), Budapest, Hungary, 2016
- C24 I. Amerini, P. BESTAGINI, L. Bondi, R. Caldelli, M. Casini, S. Tubaro, "**Robust smartphone fingerprint by mixing device sensors features for mobile strong authentication**", IS&T International Symposium on Electronic Imaging, San Francisco, USA, 2016
- C23 P. BESTAGINI, M. Tagliasacchi, S. Tubaro, "**Image phylogeny tree reconstruction based on region selection**", IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP), Shanghai, China, 2016
- C22 S. Milani, M. Fontana, P. BESTAGINI, S. Tubaro, "**Phylogenetic analysis of near-duplicate images using processing age metrics**", IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP), Shanghai, China, 2016
- C21 F. O. Costa, S. Lameri, P. BESTAGINI, Z. Dias, A. Rocha, M. Tagliasacchi, S. Tubaro, "**Phylogeny reconstruction for misaligned and compressed video sequences**", IEEE International Conference on Image Processing (ICIP), Québec City, Canada, 2015
- C20 A. Melloni, S. Lameri, P. BESTAGINI, M. Tagliasacchi, S. Tubaro, "**Near-duplicate detection and alignment for multi-view videos**", IEEE International Conference on Image Processing (ICIP), Québec City, Canada, 2015
- C19 L. Gaborini, P. BESTAGINI, S. Milani, M. Tagliasacchi, S. Tubaro, "**Multi-clue image tampering localization**", IEEE International Workshop on Information Forensics and Security (WIFS), Atlanta, USA, 2014
- C18 M. Buccoli, P. BESTAGINI, M. Zanoni, A. Sarti, S. Tubaro, "**Unsupervised feature learning for bootleg detection using deep learning architectures**", IEEE International Workshop on Information Forensics and Security (WIFS), Atlanta, USA, 2014
- C17 A. Melloni, P. BESTAGINI, S. Milani, M. Tagliasacchi, A. Rocha, S. Tubaro, "**Image phylogeny through dissimilarity metrics fusion**", European Workshop on Visual Information Processing (EUVIP), Paris, France, 2014
- C16 S. Lameri, P. BESTAGINI, A. Melloni, S. Milani, A. Rocha, M. Tagliasacchi, S. Tubaro, "**Who is my parent? Reconstructing video sequences from partially matching shots**", IEEE International Conference on Image Processing (ICIP), Paris, France, 2014
- C15 S. Milani, P. BESTAGINI, M. Tagliasacchi, S. Tubaro, "**Demosaicing strategy identification via eigenalgorithms**", IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP), Firenze, Italy, 2014
- C14 S. Milani, P. BESTAGINI, M. Tagliasacchi, S. Tubaro, "**Antiforensic synthesis of motion vectors using template algorithms**", IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP), Firenze, Italy, 2014
- C13 S. Milani, P.F. Piazza, P. BESTAGINI, S. Tubaro, "**Audio tampering detection using multimodal features**", IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP), Firenze, Italy, 2014
- C12 P. BESTAGINI, M. Zanoni, L. Albonico, A. Paganini, A. Sarti, S. Tubaro, "**Feature-based classification for audio bootlegs detection**", IEEE International Workshop on Information

- Forensics and Security (WIFS), Guangzhou, China, 2013
- C11 A. Melloni, P. BESTAGINI, A. Costanzo, M. Barni, M. Tagliasacchi, S. Tubaro, "**Attacking image classification based on Bag-of-Visual-Words**", IEEE International Workshop on Information Forensics and Security (WIFS), Guangzhou, China, 2013
- C10 P. BESTAGINI, S. Milani, M. Tagliasacchi, S. Tubaro, "**Local tampering detection in video sequences**", IEEE International Workshop on Multimedia Signal Processing (MMSP), Pula, Italy, 2013
- C9 P. BESTAGINI, M. Visentini-Scarzanella, M. Tagliasacchi, P. L. Dragotti, S. Tubaro, "**Video recapture detection based on ghosting artifact analysis**", IEEE International Conference on Image Processing (ICIP), Melbourne, Australia, 2013
- C8 P. BESTAGINI, S. Milani, M. Tagliasacchi, S. Tubaro, "**Video codec identification extending the idempotency property**", European Workshop on Visual Information Processing (EUVIP), Paris, France, 2013
- C7 P. BESTAGINI, S. Battaglia, S. Milani, M. Tagliasacchi, S. Tubaro, "**Detection of temporal interpolation in video sequences**", IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP), Vancouver, Canada, 2013
- C6 S. Milani, P. BESTAGINI, M. Tagliasacchi, S. Tubaro, "**Multiple compression detection for video sequences**", IEEE International Workshop on Multimedia Signal Processing (MMSP), Banff, Canada, 2012
- C5 P. BESTAGINI, M. Fontani, S. Milani, M. Barni, A. Piva, M. Tagliasacchi, S. Tubaro, "**An overview on video forensics**", European Signal Processing Conference (EUSIPCO), Bucharest, Romania, 2012
- C4 P. BESTAGINI, A. Allam, S. Milani, M. Tagliasacchi, S. Tubaro, "**Video codec identification**", IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP), Kyoto, Japan, 2012
- C3 P. Annibale, F. Antonacci, P. BESTAGINI, A. Brutti, A. Canclini, L. Cristoforetti, E. Habets, J. Filos, W. Kellermann, K. Kowalczyk, A. Lombard, E. Mabande, D. Markovic, P. Naylor, M. Omologo, R. Rabenstein, A. Sarti, P. Svaizer, M. Thomas, "**The SCENIC project: Space-time audio processing for environment-aware acoustic sensing and rendering**", Audio Engineering Society Convention, 2011, New York, United States
- C2 P. Annibale, F. Antonacci, P. BESTAGINI, A. Brutti, A. Canclini, L. Cristoforetti, E. Habets, W. Kellermann, K. Kowalczyk, A. Lombard, E. Mabande, D. Markovic, P. Naylor, M. Omologo, R. Rabenstein, A. Sarti, P. Svaizer, M. Thomas, "**The SCENIC project: Environment-aware sound sensing and rendering**", European Future Technologies Conference and Exhibition, Budapest, Hungary, 2011
- C1 S. D. Valente, M. Tagliasacchi, F. Antonacci, P. BESTAGINI, A. Sarti, S. Tubaro, "**Geometric calibration of distributed microphone arrays from acoustic source correspondences**", IEEE International Workshop on Multimedia Signal Processing (MMSP), Saint-Malo, France, 2010