CURRICULUM VITAE

Francesca Gasparini

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Education

1997 - 2001   **Phd** in Science and Technology of Nuclear Power Plants
Department of Nuclear Engineering , Polytechnic of Milan
"Coded aperture for image reconstruction of emissive systems"

January 2000- July 2000: **Visiting Student** at the Department of Nuclear Engineering of Massachusetts Institute of Technology MIT, Cambridge, MA.

1990 - 1997   **Master's degree** in Nuclear Engineering,100/100 cum Laude,
Department of Nuclear Engineering , Polytechnic of Milan

Research Experience

2017 -   **Associate Professor** Department of Informatics, Systems and Communication University of Milano-Bicocca

2006 - 2017   **Assistant Professor**
Department of Informatics, Systems and Communication
University of Milano-Bicocca

2004 - 2006   **Postdoc Position**
Department of Informatics, Systems and Communication
University of Milano-Bicocca

2001 - 2003   **Postdoc Position**
Institute for Construction Technologies (ITC)
National Research Council (CNR), Milan

Awards

2013   Best Paper Award: Simone Bianco, Francesca Gasparini, Giuseppe Claudio Guarnera, Raimondo Schettini, 'Low-cost, high-quality spectral imaging for cultural heritage', *In Proceedings of the International Conference on Sustainable Cultural Heritage Management*, pp. 117-128, 2013.

Main Teaching Experiences

2014 -2017   **Processing and coding of multimedia data**
Department of Informatics, Systems and Communication
University of Milano-Bicocca

2006 - 2016   Teaching Assistant of the course **Databases**
Department of Informatics, Systems and Communication
University of Milano-Bicocca

2010 - 2013   **Fundamentals of Multimedia**
Department of Informatics, Systems and Communication
University of Milano-Bicocca

2007 - 2013 **Digital Signal Processing**
Department of Informatics, Systems and Communication
University of Milano-Bicocca

Program Committee and Revision Activity

Program committee 2017 Computational Color Imaging Workshop (CCIW'17), March, 2017, Milano, Italy

Program committee 2015 Computational Color Imaging Workshop (CCIW'15), Saint Etienne, France, 24-26 March 2015

Program committee 2014 SITIS 2014 (10th International Conference on Signal-Image Technology & Internet-Based Systems)

Program committee 2013 Computational Color Imaging Workshop (CCIW'13), March 3-5, 2013, Chiba, Japan

Program committee 2011 Computational Color Imaging Workshop (CCIW'11), April 20-21, 2011, Milano, Italy

Program committee 2009 Computational Color Imaging Workshop (CCIW'09), Mar 26, 2009 - Mar 27, 2009, Etienne, Saint, France

Program committee 2007 Computational Color Imaging Workshop (CCIW'07), September 14, 2007, Modena, Italy.

Reviewer

- Frontiers in Psychology, section Cognition
- Scientific Reports
- Pattern Recognition (Elsevier)
- Journal of Electronic Imaging (SPIE)
- Transactions on Image Processing (IEEE)
- Optical Engineering (SPIE)
- Journal of Imaging Science and Technology (IS&T)

Research activity

My research activity is concentrated mainly in image, audio and video processing (more generally multimedia signals), and in the analysis of the perception of these signals when used as stimuli in psychophysical experiments. I am particularly interested in processing and analysis of neurophysiological data (EEG, heart rate, blood pressure, ...), as well as psychophysical ones, using machine learning techniques, genetic programming and optimization algorithms.

Some of my research topics are listed below:

- Image enhancements.
- Image Quality Assessment, in case of single or multiple distortions
- Perception of image complexity.
- Analysis of the emotions generated by audio-visual stimuli.
- Interference of the audio signals with visual attention mechanisms.
- Analysis of salience in video, images and audio and in case of multimodal signals.
- Classification of salient events in audio, video and images.

Pubblications

Patents

B1. R.Accorsi, F.Gasparini, R.C. Lanza, MIT, United States Patent n° 6,737,652 May 18, 2004 on *Coded Aperture Imaging*.
B2. Castorina Alfio, Schettini Raimondo, Gasparini Francesca, Corchs Silvia, Capra Alessandro   *Method For Correcting A Digital Image*, US 2007/0279500A1 Dec. 6, 2007.
B3. Claudio Cusano, Paolo Gallina, Francesca, Gasparini, Raimondo Schettini, *Method for red eye detection in a digital image* EP20070723937, Gen. 13, 2010.

International Refereed Journals

P1. S. Corchs, G. Ciocca, E. Bricolo, F. Gasparini, 'Predicting Complexity Perception of Real World Images', In PLoS ONE, volume 11, number 6, pp. e0157986, 2016.

P2. S. Corchs, G. Ciocca, F. Gasparini, 'A Genetic Programming approach to evaluate complexity of texture images', n Journal of Electronic Imaging, volume 25, number 6, pp. 061408, SPIE, 2016.

P3. S. Bianco, F. Gasparini, R. Schettini, 'Adaptive Skin Classification Using Face and Body Detection' In IEEE Transactions on Image Processing, Vol. 24 (12), pp. 4756-4765, 2015.

P4. G. Ciocca, S. Corchs, F. Gasparini, R. Schettini, "How to assess image quality within a workflow chain: an overview", In International Journal on Digital Libraries, Springer, volume 15, number 1, pp. 1-25, 2014.

P5. S. Corchs, F. Gasparini, R. Schettini, "No Reference Image Quality classification for JPEG-Distorted Images", In Digital Signal Processing, Elsevier, volume 30, pp. 86-100, 2014.

P6. F. Gasparini, F. Marini, R. Schettini, M. Guarnera A no-reference metric for demosaicing artifacts that fits psycho-visual experiments. *EURASIP Journal on Advances in Signal Processing* 2012, 2012:123 (21 June 2012).

P7. A Capra, A. Castorina, S. Corchs, F. Gasparini, F. Marini, R. Schettini *A contrast image correction method* Journal of Electronic Imaging, Vol. 19(2), April-June 2010.

P8. F. Gasparini, R. Schettini *A Review of Redeye Detection and Removal in Digital Images Through Patents,* Recent Patents on Electrical Engineering, Vol. 2(1), 2009.

P9. S. Bianco, F. Gasparini, R. Schettini, L. Vanneschi, "Polynomial modeling and optimization for colorimetric characterization of scanners", Journal of Electronic Imaging; Vol. 17(4), 043002, pp 1-13, 2008

P10. S. Bianco, F. Gasparini, R. Schettini, "A Consensus Based Framework for Illuminant Chromaticity Estimation", Journal of Electronic Imaging; Vol. 17(2), 023013 pp 1-9, 2008

P11. F. Gasparini, S. Corchs, R. Schettini, Recall or precision oriented strategies for binary classification of skin pixels, Journal of Electronic Imaging, vol. 17(2), 023017, pp 1-15, 2008.

P12. G. Ciocca, C. Cusano, F. Gasparini, R.Schettini, "Self-Adaptive Image Cropping for Small Displays", IEEE Transactions on Consumer Electronics, Vol. 53, No 4, pp. 1622-1627, 2007.

P13. S. Bianco, F. Gasparini, A. Russo, R. Schettini, A new method for RGB to XYZ transformation based on pattern search optimization, IEEE Transactions on Consumer Electronics, Vol. 53, No. 3, pp. 1020-1028, 2007.

P14. F. Gasparini, S. Corchs, R. Schettini, "*Low Quality Image Enhancement Using Visual Attention",* Optical Engineering, Vol. 46 (4), 040502, 2007.

P15. F. Gasparini, S. Corchs, R. Schettini, "*A recall or precision oriented skin classifier using binary combining strategies"*, Pattern Recognition, Vol. 38 (11), pp. 2204-2207, 2005 .

P16. F. Gasparini, R. Schettini *"Color Balancing of Digital Photos Using Simple Image Statistics",* Pattern Recognition, Vol. 37 (6), pp 1201-1217, 2004.

P17. R.Accorsi, F.Gasparini, R.C.Lanza, *"Optimal Coded Patterns for Improved SNR in Nuclear Medicine Imaging"*, Nuclear Instruments and Methods in Physics Research A, 474, pp. 273-284, 2001.

P18. R. Accorsi, F. Gasparini, R. C. Lanza, *"A Coded Aperture for High-Resolution Nuclear Medicine Planar Imaging with a Conventional Anger Camera: experimental results"*, IEEE Transaction on Nuclear Science, Vol 48, N. 6, December 2001.

Books Chapters

P1. G. Ciocca, S. Corchs, F. Gasparini, C. Batini, R. Schettini, 'Quality of Images', Chapter in Data and Information Quality: Dimensions, Principles and Techniques, Springer, 2015.

P2. G. Ciocca, S. Corchs, F. Gasparini, R. Schettini, 'Modeling Image Quality', *Chapter in Encyclopedia of Information Science and Technology (, ed.)*, IGI Global, pp. , Accepted.

P3. S. Bianco, F. Gasparini, R. Schettini, Color Coding for Data Visualization *Chapter in Encyclopedia of Information Science and Technology (, ed.)*, IGI Global, pp. , Accepted.

P4. Bianco, A. Colombo, F. Gasparini, R. Schettini, S. Zuffi "Applications of spectral imaging and reproduction to cultural heritage in Digital Imaging for Cultural Heritage Preservation: Analysis, Restoration and Reconstruction of Ancient Artworks" - Eds. F. Stanco, S. Battiato, G. Gallo - CRC Press/Taylor & Francis - Digital Imaging and Computer Vision Book series, 2010.

P5. F. Gasparini, R. Schettini, Automatic Red-Eye Removal for digital photography, Invited, Single-Sensor Imaging: Methods and Applications For Digital Cameras (R Lukac ed.), CRC Press 2008.

Refereed Proceedings of International Conferences

P1. Corchs S., Gasparini F. (2017) A Multidistortion Database for Image Quality. In: Bianco S., Schettini R., Trémeau A., Tominaga S. (eds) Computational Color Imaging. CCIW 2017. Lecture Notes in Computer Science, vol 10213. Springer, Cham.

P2. Ciocca G., Corchs S., Gasparini F. (2017) A Complexity-Based Image Analysis to Investigate Interference Between Distortions and Image Contents in Image Quality Assessment. In: Bianco S., Schettini R., Trémeau A., Tominaga S. (eds) Computational Color Imaging. CCIW 2017. Lecture Notes in Computer Science, vol 10213. Springer, Cham.

P3. S. Corchs, G. Ciocca, F. Gasparini, 'Human perception of image complexity: real scenes versus texture patches', in Journal of Alzheimer's Disease, Abstracts for the Second International Meeting of the Milan Center for Neuroscience (Neuromi): Prediction and Prevention of Dementia: New Hope (Milan, July 6–8, 2016), volume 53, number s1, pp. s51, 2016.

P4. F. Gasparini, S. Corchs, A. Grossi,' Affective Audio Analysis using objective features', In Journal of Alzheimer's Disease, Abstracts for the Second International Meeting of the Milan Center for Neuroscience (Neuromi): Prediction and Prevention of Dementia: New Hope (Milan, July 6–8, 2016), volume 53, number s1, pp. s64, 2016.

P5. G. Ciocca, S. Corchs, F. Gasparini, E. Bricolo, R. Tebano, "Does color in infuence image complexity perception?", in Fifth IAPR Computational Color Imaging Workshop (CCIW'15), Springer Berlin / Heidelberg, volume 9016 of Lecture Notes in Computer Science, pp. 139-148, Springer Berlin / Heidelberg, 2015.

P6. G. Ciocca, S. Corchs, F. Gasparini, "Complexity Perception of Texture Images", *In New Trends in Image Analysis and Processing -- ICIAP 2015 Workshops*, volume 9281 of Lecture Notes in Computer Science, pp. 119-126, Springer International Publishing, 2015

P7. Silvia Corchs, Gianluigi Ciocca, Massimiliano Fiori, Francesca Gasparini, "Video salient event classification using audio features", *In Imaging and Multimedia Analytics in a Web and Mobile World 2014*, SPIE, volume 9027, pp. 90270P, 2014.

P8. Silvia Corchs, Francesca Gasparini, Raimondo Schettini, "Noisy Images-JPEG Compressed: Subjective and Objective Image Quality Evaluation", *In Image Quality and System Performance XI*, SPIE, volume 9016, pp. 90160V, 2014.

P9. Silvia Corchs, Francesca Gasparini, Raimondo Schettini, "Grouping strategies to improve the correlation between subjective and objective image quality data", *In Image Quality and System Performance X, IS&T/SPIE Electronic Imaging*, SPIE, volume 8653, pp. 86530D(1-8), 2013.

P10. Maria Artese, Simone Bianco, Isabella Gagliardi, Francesca Gasparini, "Audio stream classification for multimedia database search", *In Multimedia Content and Mobile Devices*, SPIE, volume 8667, pp. 86670G, 2013.

P11. S. Bianco, F. Gasparini, R. Schettini, "Computational strategies for skin detection", *In Computational Color Imaging, Fourth International Workshop*, Springer Berlin / Heidelberg, volume 7786 of Lecture Notes in Computer Science, pp. 199-211, 2013.

P12. S. Bianco, F. Gasparini, G. C. Guarnera, R. Schettini, "Low-cost, high-quality spectral imaging for cultural heritage", In Proceedings of the International Conference on Sustainable Cultural Heritage Management, pp. 117-128, 2013.

P13. F. Gasparini, R. Schettini, C. Cusano, Color transfer using semantic image annotation. In Digital Photography VIII, SPIE, volume 8299, pp. 82990U, 2012.

P14. A. Ceresi, F. Gasparini, F. Marini, R. Schettini, Bio-inspired framework for automatic image quality enhancement. In Digital Photography VIII, IS&T/SPIE Electronic Imaging, SPIE, volume 8299, pp. 82990G (1-8), 2012.

P15. S. Corchs, F. Gasparini, F. Marini, R. Schettini, "A sharpness measure on automatically selected edge segments" In Image Quality and System Performance IX, IS&T/SPIE Electronic Imaging, volume 8293, pp. 82930a(1-8), SPIE, 2012.

P16. S. Corchs, F. Gasparini, R. Schettini, "Enhancing Underexposed Images Preserving the Original Mood", Lecture Notes in Computer Science, Vol. 6626/2011, pp 125-136, 2011.

P17. S. Corchs, F. Gasparini, R.Schettini *Adaptive contrast enhancement for underexposed images* Digital Photography VII, IS&T/SPIE Electronic Imaging 2011, 23-27 January 2011

P18. S. Corchs, F. Gasparini, F. Marini, R.Schettini *Image quality: a tool for no-reference assessment methods* Image Quality and System Performance VIII, IS&T/SPIE Electronic Imaging 2011, 23-27 January 2011.

P19. S. Battiato, S. Bianco, G. Ciocca, F. Gasparini, G. Puglisi, S. Schettini *Smart Photo Sticking for Intangible Cultural Heritage* In Proceedings of Minisymposium Image Analysis Maethods for Cultural Heritage, SIMAI 2010, Cagliari (Italy) – June 2010

P20. F. Gasparini, M. Guarnera, F. Marini, R.Schettini *No-reference metrics for demosaicing* Image Quality and System Performance VII, Edited by Farnand, Susan P.; Gaykema, Frans. Proceedings of the SPIE, Volume 7529, pp. 752911-752911-9, 2010.

P21. S. Bianco, F. Gasparini, R. Schettini *Region-Based Illuminant Estimation for Effective Color Correction* LNCS Lecture Notes in Computer Science Volume 5716/2009, pages 43-52, 2009

P22. S. Battiato, G. Ciocca, F. Gasparini, G. Puglisi, R. Schettini *Smart Photo Sticking* Adaptive Multimedial Retrieval: Retrieval, User, and Semantics ,LNCS Lecture Notes in Computer Science volume 4918/2008, pages 211-223, 2008

P23. S. Bianco, F. Gasparini, R. Schettini, L.Vanneschi *An Evolutionary Framework for Colorimetric Characterization of Scanners* Proceeding of Applications of Evolutionary Computing (M. Giacobini et al., eds), Vol. 4974/2008 LNCS, pages 245-254, 2008

P24. G. Ciocca, C. Cusano, F. Gasparini, R. Schettini, *Integrating imaging and vision for content-specific image enhancement*, Proc. VISAPP 2007, pp. 192-199, 2007.

P25. S. Bianco, F. Gasparini, R.Schettini, *Combining strategies for automatic white estimation in real images*, in proceedings of IEEE Computational Color Imaging, 14th ICIAP Workshops, IEEE, pages 175-178, 2007.

P26. S. Bianco, F. Gasparini, R. Schettini, "*Matrixing, number of color channels, and color gamut of camera devices*", Digital Photography III, IS&T/SPIE Symposium on Electronic Imaging Vol. SPIE 6502 (R.A. Martin, J.M. DiCarlo, N. Sampat eds.) pp. 650208-1-11, 2007

P27. S. Bianco, F. Gasparini, R. Schettini, "*Combining strategies for white balance*", Digital Photography III, IS&T/SPIE Symposium on Electronic Imaging, Vol. SPIE 6502 (R.A. Martin, J.M. DiCarlo, N. Sampat eds.) pp. 650208D-1-9, 2007.

P28. G. Ciocca, C. Cusano, F. Gasparini, R. Schettini, "Content-aware image enhancement", Proc. AI*IA 2007: Artificial Intelligence and Human-Oriented Computing, Lecture Notes in Artificial Intelligence, LNAI 4733, pp. 686-697, 2007.AIIA 07

P29. F. Gasparini, R. Schettini "*Skin segmentation using multiple thresholding*" Proc. Internet imaging VII, Vol. SPIE 6061 (S. Santini, R. Schettini, T. Gevers eds.), pp. 60610F-1, 60610F-8, 2006.

P30. A. Bruna, F. Naccari, F. Gasparini, R. Schettini, *Multidomain pixel analysis for illuminant estimation*", Proc. Digital Photography II, Vol SPIE 6069, (N. Sampat, J.M. DiCarlo, R.A. Martin), pp. 115-122, 2006.

P31. A. Capra, A. Castorina, S. Corchs, F. Gasparini and R. Schettini, *"Dynamic Range Optimization by Local Contrast Correction and Histogram Image Analysis"*, International Conference on Consumer Electronics ICCE 2006, pp. 309- 310, 2006.

P32. C. Cusano, F. Gasparini, R. Schettini, "*Image annotation for adaptive enhancement of uncalibrated color images*", Proc. of the 8th International Conference on Visual Information Systems, Amsterdam, July 2005, Springer, Lecture Notes in Computer Sciences, Vol. 3736, 2005, pp. 216-225.

P33. F. Gasparini, R. Schettini, "*Automatic redeye removal for smart enhancement of photos of unknown origin*", Proc. of the 8th International Conference on Visual Information Systems, Amsterdam, July 2005, Springer, Lecture Notes in Computer Sciences, Vol. 3736, 2005, pp. 226-233.

P34. F. Gasparini, S. Corchs, R. Schettini, "*Adaptive edge enhancement using a neurodynamical model of visual attention*", Proc. IEEE International Conference on Image Processing (ICIP 2005), Vol. III, pp. 972-975, 2005.

P35. F. Gasparini, S. Corchs, R. Schettini, "*Pixel based skin colour classification exploiting explicit skin cluster definition methods*" , Proc. of the 10th Congress of the International Colour Association, Vol. I, pp. 543-546, 2005.

P36. F. Chazli, F. Gasparini, R. Schettini, "*A modular procedure for automatic redeye correction in digital photos*", Proc. Color Imaging IX: Processing, Hardcopy, and Applications IX, Proceedings of SPIE Vol. 5293 (R. Eschbach, G.G. Marcu eds.), pp.139-147, 2004.

P37. F. Gasparini, R. Schettini, "*Color Correction for Digital Photographs*" Proc. 12th International Conference on Image Analysis and Processing, ICIAP 2003, IEEE Press, pp. 646-651, 2003

P38. F. Gasparini, R. Schettini, P.Gallina, " *Tunable Cast Remover for Digital Photographs*", Color Imaging: Device-Independent Color, Color Hardcopy, and Applications VII, Proceedings of SPIE Vol. 5008 (R. Eschbach, G.G. Marcu eds.), pp 92-100, 2003.

P39. F. Gasparini, R. Schettini, P.Gallina, "*An Innovative Algorithm for Cast Detection*", Proceedings of SPIE Vol. 4672, pp 280-286, 2002

P40. Roberto Accorsi, Francesca Gasparini, Richard C. Lanza, *"Coded Aperture Imaging with Application to Fast Neutron Analysis and to Nuclear Medicine Imaging: a Technique with Applicability to Supply Reduction and to Demand Reduction."* Proceedings of the 2001 ONDCP International Technology Symposium.

P41. Roberto Accorsi, Francesca Gasparini, Richard C. Lanza, Marzio Marseguerra, *Determination of a Gamma Source Distribution for Safeguard Purposes by Data Processing with a Coded Aperture Camera"*, Proceedings of 28th Informal Meeting On Reactor Noise (I.M.O.R.N.-28), Athens, October 11-13, 2000

P42. Roberto Accorsi, Francesca Gasparini, Richard C. Lanza, "*Coded Aperture Fast Neutron Analysis*", Gordon Research Conference on Illicit Substance Detection, Connecticut College, New London, CT, July 2000.

P43. Francesca Gasparini, Marzio Marseguerra, *"Tomographic Detection of a Missing Rod in an Irradiated Fuel Bundle",* Proceedings of 27th Informal Meeting On Reactor Noise (I.M.O.R.N.-27), Valencia, November 18-20, 1997.

Dissertations, technical reports, and other publications

P1. Modeling Image Quality (Gianluigi Ciocca, Silvia Corchs, Francesca Gasparini, Raimondo Schettini), Atti del Sesto Convegno del Gruppo Italiano Ricercatori in Pattern Recognition, pp. 41, 2012

P2. Simone Bianco, Gianluigi Ciocca, Silvia Corchs, Claudio Cusano, Francesca Gasparini, Fabrizio Marini, and Raimondo Schettini. Content aware color image processing. In Colore e Colorimetria: contributi multidisciplinari, *Atti della VI Conferenza Nazionale del Colore*, 2010.

P3. S. Bianco, G. Ciocca, C. Cusano, F. Gasparini, F. Marini, R. Schettini *Modular procedures for content aware image enhancement* Emerging Paradigms in Informatics, Systems and Communication, Quaderni Disco, Vol. 1, pp.17, 22, 2009.

P4. S. Bianco, F. Gasparini, R. Schettini *Metodi per la stima e la correzione di dominanti colore in immagini digitali* In Colore e Colorimetria: contributi multidisciplinari, ISBN 88-7957-282-2, volume 4, pages 135-143, 2008

P5. S. Bianco, F. Gasparini, R. Schettini, "*Spectral based color imaging using RGB digital still cameras*", Colore e Colorimetria: contributi multidisciplinari, Vol II, Collana Quaderni di Ottica e Fotonica 14, pp. 67-78, 2006 (ISBN 88-7957-243-1)