

Curriculum Vitae

Prof. Luca Mainardi, PhD

2018-01-24

1 Summary

LUCA MAINARDI received the Master Degree (Italian *Laurea*) in Electronic Engineering from the Politecnico di Milano, Italy in 1990 and the Doctorate Degree (PhD) in Biomedical Engineering in 1997 from the same University.

In 2001 he joined Politecnico di Milano as Assistant Professor and he is actually at the *Dipartimento di Elettronica, Informazione e Bioingegneria* as Associate Professor. Since 1999 he is teaching *Biomedical Signals Processing Laboratory*, a course of the Master Degree in Biomedical Engineering and *Bioelectromagnetism*, a course of the Bachelor Degree in Biomedical Engineering. He is member of the Board of the PhD track in Bioengineering. In the period 2001 – 2011 he was the Responsible of the *Biomedical Signal, Data and Image Processing Laboratory*. Among the founders of the *Laboratory of Advanced Radiological Analysis (LARA)*, a joint-initiative between Politecnico di Milano and the National Cancer Institute of Milan, he is actually a member of its Scientific Board.

His research activity is in the field of biomedical signal and image processing and biomedical system modeling with applications to the cardiovascular system. He is studying and developing methods for time-frequency analysis, recursive parametric identification and non-linear analysis of cardiovascular signals and series. He is interested in advanced biomedical image processing techniques for features extraction and image registration for oncology applications. He is author of more than 100 peer reviewed papers on international journals and more than 140 conference papers on these topics. He authored 12 book chapters. Editor of the book *Understanding Atrial Fibrillation: the signal processing Contribution* published by Morgan&Claypool, USA, he was co-editor of the Special Issue *Processing and Interpretation of Cardiac Signal during Atrial Fibrillation* of the IEEE-EMB Magazine (2006) and co-editor of the Focus Issue on *Biosignal interpretation I. Advanced methods for studying cardiovascular and respiratory systems* of *Methods Information in Medicine* (2014).

Member of the Editorial Board of *Biomedical Engineering / Biomedizinische Technik* Journal, he serves as a Referee for several international journals including, among others, IEEE Transaction on BME, IEEE Transaction on ITB, Computer Methods and Programme in Biomedicine, Journal of Electrocardiology and the EURASIP J. of Applied Signal Processing.

Member of the Directory Board of the Italian National Group of Bioengineering (GNB) in the period 2004 – 2007, he is the elected Chair of the International Medical Informatics Association (IMIA) WG7 on *Biomedical Pattern Recognition* for the period 2010 – 2017.

2 Detailed Curriculum

Anagraphic

Name/Surname Luca Mainardi
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Bibliographic Indexes

Scholar

Citations 6085 – 2765 (All – Since 2013)
h-index 34 – 24
i10-index 100 – 52
Scholar <https://scholar.google.it/citations?user=-4sUeToAAAAJ&hl=en>

Education

11/1884–12/1990 Master (*Laurea*) Degree in Electronic Engineering, Politecnico di Milano, Italy
04/1994–04/1997 PhD Degree in Biomedical Engineering, Politecnico di Milano. Thesis title: *Multivariate Models for the study of the dynamic interactions of cardiovascular control mechanisms.*

Academic Carrier

Temporary position

05/1991–03/1994 Research Grant by Cardioline Remco Italia s.p.a.
12/1998–02/2001 Research Affiliate (*Assegno di Ricerca*), Department of Bioengineering, Politecnico di Milano.

Permanent position

03/2001–12/2010 Assistant Professor, Department of Bioengineering, Politecnico di Milano.
03/2010–... Associate Professor, Department of Bioengineering, Politecnico di Milano.

Academic Teaching

Master Degree - Engineering School

- 2000–2001 *Bioelectromagnetism*, Laurea Degree in Biomedical Engineering, Politecnico di Milano.
- 1999–2004 *Biomedical Signal and Data Processing III*, Master Degree in Biomedical Engineering, Politecnico di Milano.
- 2004–... *Biomedical Signal Processing Laboratory*, Master Degree in Biomedical Engineering, Politecnico di Milano.

Bachelor Degree - Engineering School

- 2006–2010 *Bioelectricity and Biomagnetism*, Bachelor Degree in Biomedical Engineering, Politecnico di Milano.
- 2010–... *Bioelectromagnetism*, Bachelor Degree in Biomedical Engineering, Politecnico di Milano.

Bachelor Degree - School of Medicine

- 2008–2013 *Technologies in Radiology for imaging and radiotherapy*, Bachelor Degree in Tecnology for Radiolgy, University of Milano.

Phd School - Engineering School

- 2002–2014 Among the Lecturers of the course *Advanced Biomedical Signal and Data Processing*, Bioengineering PhD Track, Politecnico di Milano.
- 2016–2017 Course on *Biosignal Processing 4 All: Applications in Affective-Computing, Biometric and Neuromarketing*, PhD School Course, Politecnico di Milano.

Miscellaneous

- 06/1994 Course on *Elettronica Biomedica* (Biomedical electronics) founded by the European Social Fund at Istituto Professionale Industria e Artigianato di Alghero (SS).
- 03/1995 Course on *Elaborazione Segnali Biomedicali* (Biomedical signal processing) founded by the European Social Fund at Istituto Professionale Industria e Artigianato di Alghero (SS).
- 05/1996 Course on *Elaborazione Numerica del segnale informativo* (Digital signal processing) founded by the European Union and Sardegna Region at Istituto Professionale Industria e Artigianato di Alghero (SS).

Thesis

- 1994–... He has been Tutor/Co-Tutor of more than 70 Master Thesis in Biomedical Engineering.
- 2001–... He has been Scientific Advisor of 9 PhD Thesis in Biomedical Engineering.

Organization Responsibility, Committees & Board

International

- 2003–2017 Elected Chair of the International Medical Informatics Association (IMIA) WG7 on *Biomedical Pattern Recognition*.
- 2016–2018 Vice-Chair of the IEEE-EMBS Technical Committee on Biomedical Signal Processing.
- 2018–2020 Chair of the IEEE-EMBS Technical Committee on Biomedical Signal Processing.

National

- 2005–2007 Elected Member of the Directory Board of Italian National Group of Bioengineering (GNB).

University Committees

- 2003–1005 Responsible for the Study Plan of the Bachelor Degree in Biomedical Engineering at Politecnico di Milano.
- 2004–2007 Member of the Scientific Committee of the Department of Bioengineering of the Politecnico di Milano.
- 2007–2009 Member of the Board (*Giunta*) of the Department of Bioengineering of the Politecnico di Milano.
- 2009–2012 Scientific Responsible of Politecnico of the research convention with the National Cancer Institute of Milan.
- 2012–2015 Member of the Board (*Giunta*) of the Department of Electronics, Information and Bioengineering of the Politecnico di Milano.
- 2001–. . . Promoter of the Erasmus Exchange between Politecnico di Milano and: a) Université de Rennes I, Rennes, France; b) Universidad de Zaragoza, Spain.
- 2004–. . . Responsible for the Study Plan of the Master Degree in Biomedical Engineering at Politecnico di Milano.
- 2012–. . . Member of the Board of the PhD Track in Biomedical Engineering at Politecnico di Milano.
- 2015–. . . Member of the Didactic Board (*Giunta per la Didattica*) of the Department of Electronics, Information and Bioengineering of the Politecnico di Milano.

University Labs

- 2002–2011 Responsible of the *Biomedical Signal, Data and Image Processing* Laboratory, Politecnico di Milano.
- 2004–2015 Founder and Member of the Board of the *Laboratory of Advanced Radiological Analysis* (LARA), a Joint-initiative between the National Cancer Institute of Milano and Politecnico di Milano.

2016-... Founder and Co-Chair of the *SINlabs* at Politecnico di Milano.

Others

2002-2004 Member of the Commission for the National State Italian Qualification in the Engineering.

Editor

Editorial Board

2013-... Member of the Editorial Board of *Biomedical Engineering / Biomedizinische Technik* (Walter de Gruyter GmbH & Co. Publisher).

2015-... Member of the International Advisory Board of *Physiological Measurements* (IOP Publishing).

Books

2008 *Understanding Atrial Fibrillation: The Signal Processing Contribute*, L. Mainardi, L. Sornmo, S. Cerutti Eds, Morgan&Claypool, USA.

2011 (in Italian) *Principi di Bioelettricità e Bioelettromagnetismo*, L. Mainardi and P. Ravazzani, Patron Editore, Bologna, Italy.

Journal Special Issues

11/2006 *Processing and Interpretation of Cardiac Signal during Atrial Fibrillation* Special Issue of the *EMBS Magazine in Medicine and Biology* (Issue 8, Nov/Dec 2006).

11/2014 *Biosignal interpretation I. Advanced methods for studying cardiovascular and respiratory systems*, Focus Issue of *Methods Information in Medicine* (Issue 4, 2014).

Research Grants

Principal Investigator

[European Union Grants]

2016-2019 Unit Coordinator, EU project, call: H2020-PHC-2015, GA #689715, *BD2Decide: Big Data and models for personalized Head and Neck Cancer Decision support*.

2016-2021 Coordinator, Marie-Curie Action, call: H2020-MSCA-ITN-2017, GA #766082, *Multidisciplinary training network for Atrial fibrillation monitoring, treatment and progression*

[Research Grants]

2001-2002 Principal Investigator of National Research Council funding #CNRG00F3F1 *Methods for the analysis of endocavitary signals for the detection and classification of atrial fibrillation episodes and for the planning of antiarrhythmic therapy*.

2006 Research grant by IRCCS Fondazione C. Mondino, Pavia.

2010-2013 Research funding by National Cancer Institute of Milano, Italy

2013-2015 Research grant: *Metodi innovativi per la caratterizzazione di zone cutanee in presenza di lesioni come ausilio per la diagnosi di melanomi*, European Institute of Oncology, Milano, Italy.

2014 Unit Coordinator, AIRC Grant: *Retrospective and prospective study of late radiation damages after focal radiotherapy for childhood brain tumors*

[Industrial Grants]

2001-2002 Industrial grant: *Tomography reconstruction of electronic circuits* (Ricostruzione tomografica di circuiti elettronici), Piergiacomini Sud, Montepreandone (AP).

2010 Industrial grant: *Simultaneous Analysis of arterial pressure signals and evaluation of hemodynamic parameters*. Flag Vascular srl, Monza, Italy.

2013 Industrial grant: *Multilead novel ECG*, 4-Medical Innovation, Legnano, Italy.

2015 Industrial grant: *Algorithm for ECG signal analysis in monitoring applications*, WinMedical, Pisa, Italy.

[PhD Fundings]

2006-2010 PhD fundings by Sorin Group, Saluggia, Italy.

2017-2019 PhD Funding by Università della Svizzera Italiana and Cardiocentro Ticino, Switzerland.

Collaborator

- 1996–1997 MIUR project: *Elaborazione di segnali ed integrazione di immagini per lo studio delle risposte dinamiche nel Sistema Nervoso Centrale*;
- 1994–1997 EU project: *Improving Control of Patient Status in Critical Care (IMPROVE)* belonging to EU DG XII BIOMED-1 program.
- 1997–2000 EU project: *Improved Monitoring for Brain Dysfunction in Intensive Care and Surgery (IBIS)* belonging to European Union DG-XII BIOMED-2 programme
- 2001–2002 MIUR project: *Metodologie e tecnologie per la valutazione delle relazioni strutturali e funzionali tra Sistema Nervoso Autonomo e Sistema Nervoso Centrale*;
- 2003 Industrial grant: *Design and development of hardware/software analysis modules*, Ela Medical, France.

Evaluator of Project/Research Proposal

- 09/2007 Member of the Evaluation Panel for EU Collaborative Project Call HEALTH–2007-1.2.1, Development of a hybrid imaging system, Brussels.
- 07/2011 Member of the Evaluation Panel for Biomedical Engineering subarea of the Health Sciences area, Project Call by the Science and Technology Foundation (FCT), Portugal.
- 11/2011 Evaluator of Research Proposals for the Research Promotion Foundation, Lefkosia, Cyprus.
- 11/2011 Evaluator of Research Proposals for PRIN Call by the Italian Ministry of Research & University.
- 10/2012 Member of the Bioengineering, Biotechnology and Biochemistry Evaluation panel for the Project Call by the Science and Technology Foundation (FCT), Portugal.
- 11/2012 Evaluator of Research Proposals for the Czech Science Foundation.
- 11/2011 Evaluator of Research Proposals for PRIN Call by the Italian Ministry of Research & University.
- 01/2013 Reviewer for the Quality of Research Evaluation Initiative (VQR 2004-2010) by the Italian Ministry of Research & University.
- 08/2013 Chair of the Evaluation panel (areas: (a) Bioengineering, Biotechnology and Biochemistry; (b) Materials Science and Engineering) for the Exploratory Projects 2013 Call by the Science and Technology Foundation (FCT), Portugal.
- 03/2013 Evaluator of Research Proposals for the Future in Reserach Call by the Italian Ministry of Research & University.

03/2013 Evaluator of Research Proposals for the PRIN 2013 Call by the Italian Ministry of Research & University.

Organization of Scientific Events

Program Chair

07/2012 Program Chair of the VII International workshop on Biosignal Interpretation (BSI2012), 2-4 July, Como, Italy.

08/2015 Program Chair of the 37th IEEE-Engineering in Medicine and Biology Society (EMBC 2015), 25-29 August, Milano, Italy.

2019 Appointed Program Chair of the 41th IEEE-Engineering in Medicine and Biology Society (EMBC 2019), Berlin, Germany.

Track Chair

09/2009 Track Chair of Biosignal Processing inside Theme 4, Medical Physic and Biomedical Engineering World Congress 2009, 7-12 September, Munich, Germany.

Member of Program/Scientific Committees

09/2013 Member of the Scientific Committee of the XIII Mediterranean Conference on Medical and Biological Engineering and Computing (MEDICON), Sevilla, Spain, 25-28 September, 2013.

09/2014 Member of the Scientific Committee of the VI European Conference of the International Federation for Medical and Biological Engineering (MBEC2014), Dovrovnik, Croatia, 7-11, Sept. 2014.

09/2014 Member of the Program Committee of the International Congress on Cardiovascular Technologies (CARDIOTECHNIX 2014), Roma, Italy.

09/2014 Member of the International Scientific Committee of the 8th Biosignal Interpretation Workshop (BSI2016), Osaka, Japan.

09/2017 Member of the International Program Committee of the 4th IEEE Middle East Conference on Biomedical Engineering, Tunis, Tunisia-

Organizing Committees

1995 Organizing Committee of the I International Summer School of the IEEE Engineering in Medicine and Biology Society, Certosa di Pontignano, Siena, Italy.

- 1999 Organizing Committee of the III International Summer School of the IEEE Engineering in Medicine and Biology Society, Certosa di Pontignano, Siena, Italy.
- 2003 Organizing Committee of the V International Summer School of the IEEE Engineering in Medicine and Biology Society, Certosa di Pontignano, Siena, Italy.
- 2002 Organizing Committee of the 4th International Workshop on Biosignal Interpretation (BSI2002), Villa Olmo, Como, Italy.

Member of PhD Commissions/Tribunals

- 2000 Member of the Tribunal of PhD defense at the University of Zaragoza, Spain. (Candidate: Javier Mateo Gascon).
- 2006 Member of the Tribunal of PhD defense at the University of Zaragoza, Spain. (Candidate: Raquel Bailon).
- 2006 Member of the Commission of PhD final examination at the Politecnico di Milano.
- 2007 Member of the Tribunal of PhD defense at the Polytechnic University of Catalonia, Barcelona, Spain. (Candidate: M.E. Palacios Munoz).
- 2008 Member of the Tribunal of PhD defense at the Polytechnic University of Valencia. (Candidate: Maria de la Salud Guillem)
- 2009 Member of the Commission of PhD final examination at the University of Padova.
- 2009 Member of the Commission of PhD final examination at the University of Pavia.
- 2009 Member of the Tribunal of PhD defense at University of Porto, Portugal. (Candidate: Sonia Gouveia)
- 2010 Member of the Tribunal of PhD defense at University of Nice, France. (Candidate: Pietro Bonizzi)
- 2011 Member of the Tribunal of PhD defense at University of Zaragoza, Spain. (Candidate: Anna Minchole)
- 2011 Member of the Tribunal of PhD defense at the Polytechnic University of Valencia, Spain. (Candidate: Andreu Climent)
- 2013 Member of the Commission of PhD final examination at the Politecnico di Milano
- 2013 External Examiner in the Viva PhD defense at the Leicester University, UK. (Candidate: Joao Salinet)
- 2016 *President* of the Tribunal of PhD defense at University of Zaragoza, Spain. (Candidate: Alejandro Alcaine)

- 2017 Member of the Tribunal of PhD defense at the Ecole Polytechnique de Lausanne, Switzerland. (Candidate: Leila Mirmohamadsadeghi)
- 2017 Member of the Tribunal of PhD defense at the University of Rennes, France. (Candidate: Mireila Calvo)
- 2017 Member of the Tribunal of PhD defense at the Politecnico di Milano, Italy. (Candidate: Martin Yebra Alba Pilar)

Invited Lectures

- 2004 *Quadratic Time-Frequency Representations*, XXIII Annual School in Bioengineering, Bressanone, Italy.
- 2005 *Advanced Biomedical Signal Analysis*, 14th International Conference of Medical Physics in Nuremberg, Germany
- 2005 State-of-the-art Lecture: *The autonomic nervous system in atrial fibrillation initiation and maintenance*, NordForsk Network Workshop on BioSignal Processing in Atrial Fibrillation, Lund, Sweden.
- 2007 *Multiscale analysis of Atrial Fibrillation*, 6th IEEE-EMBS Summer School on Biomedical Signal Processing, Siena, Italy.
- 2009 *Cardiovascular variability signals: the epiphany of complex regulating systems*, BiYOMUT2009 Satellite symposium on emerging technologies in biomedicine, Izmir, Turkey
- 2009 *Signal processing in atrial fibrillation: a multiscale perspective* at Digital Signal Processing in Cardiovascular Research Workshop, University of Leicester, UK.
- 2011 *Biomedical Signal processing and the case of Heart Rate Variability*, University of Lisbon, Portugal.
- 2013 *The Utility Metric*, Workshop on BCI Performance Metrics at the BCI2013 Meeting, Asilomar Conf. Center, CA, USA.
- 2013 *A Model of the Atrioventricular Node Function During Atrial Fibrillation*, University of Leicester, UK.
- 2015 *HR and Blood pressure variability during AFIB*, Atrial Signals 2015 workshop, Karlsruhe, Germany.
- 2017 Opening Lecture *Signal Processing and Modeling Approaches in Atrial Fibrillation* at the XXXV Congreso Anual de la Sociedad Española de Ingeniería Biomédica (CASEIB2017), Bilbao, Spain.

Journal Articles

- [1] A. M. BIANCHI, L. T. MAINARDI, and S. CERUTTI, “Batch and time-variant parametric spectral analysis for respiratory component estimation in heart rate variability signal,” *JOURNAL OF AMBULATORY MONITORING*, vol. 5, pp. 107–121, 1992.
- [2] A. M. BIANCHI, L. T. MAINARDI, E. PETRUCCI, M. G. SIGNORINI, M. MAINARDI, and S. CERUTTI, “Time-variant power spectrum analysis for the detection of transient episodes in hrv signal,” *IEEE TRANSACTIONS ON BIOMEDICAL ENGINEERING*, vol. 40, pp. 139–144, 1993.
- [3] S. Cerutti, G. Baselli, A. M. Bianchi, L. Mainardi, M. G. Signorini, and A. Malliani, “Cardiovascular variability signals: from signal processing to modelling complex physiological interactions,” *AUTOMEDICA*, vol. 16, pp. 45–69, 1994.
- [4] L. T. MAINARDI, A. M. BIANCHI, and S. CERUTTI, “On-line beat-to-beat monitoring of spectral parameters of heart rate variability signal using a pole-tracking algorithm,” *METHODS OF INFORMATION IN MEDICINE*, vol. 33, pp. 85–88, 1994.
- [5] A. V. S. Ghiringhelli, E. Petrucci, L. T. Mainardi, F. Galdangelo, and M. Bertinelli, “Automatic analysis of pacemaker function in long-term ECG recordings,” *JOURNAL OF AMBULATORY MONITORING*, vol. 8, pp. 107–116, 1994.
- [6] M. L. T, B. A. M, G. Baselli, and S. Cerutti, “Pole-tracking algorithms for the extraction of time-variant heart rate variability spectral parameters,” *IEEE TRANSACTIONS ON BIOMEDICAL ENGINEERING*, vol. 42, pp. 250–259, 1995.
- [7] I. KORHONEN, L. T. MAINARDI, P. LOULA, G. CARRAULT, G. BASELLI, and A. BIANCHI, “Linear multivariate models for physiological signal analysis: Theory,” *COMPUTER METHODS AND PROGRAMS IN BIOMEDICINE*, vol. 51, pp. 85–94, 1996.
- [8] I. KORHONEN, L. MAINARDI, G. BASELLI, A. BIANCHI, P. LOULA, and G. CARRAULT, “Linear multivariate models for physiological signal analysis: Applications,” *COMPUTER METHODS AND PROGRAMS IN BIOMEDICINE*, vol. 51, pp. 121–130, 1996.
- [9] E. Petrucci, S. Ghiringhelli, V. Balian, L. T. Mainardi, and M. Bertinelli, “Clinical evaluation of algorithms for st measurement during exercise test,” *CLINICAL CARDIOLOGY*, vol. 19, pp. 248–252, 1996.
- [10] E. PETRUCCI, L. MAINARDI, V. BALIAN, S. GHIRINGHELLI, A. M. BIANCHI, M. BERTINELLI, M. MAINARDI, and S. CERUTTI, “Assessment of heart rate variability (hrv) changes during dipyridamole infusion and dipyridamole induced myocardial ischemia. a time-variant spectral approach,” *JOURNAL OF THE AMERICAN COLLEGE OF CARDIOLOGY*, vol. 28, pp. 924–934, 1996.

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- [11] R. BARBIERI, A. M. BIANCHI, J. K. TRIEDMAN, L. T. MAINARDI, S. CERUTTI, and P. J. SAUL, "Model dependency of multivariate autoregressive spectral analysis: Hemodynamic control during manipulation of autonomic state," *IEEE ENGINEERING IN MEDICINE AND BIOLOGY MAGAZINE*, vol. 16, pp. 74–85, 1997.
- [12] A. M. BIANCHI, L. T. MAINARDI, C. MELONI, S. CHIERCHIA, and S. CERUTTI, "Continuous monitoring of the sympatho-vagal balance through recursive autoregressive spectral analysis," *IEEE ENGINEERING IN MEDICINE AND BIOLOGY MAGAZINE*, vol. 5, pp. 64–73, 1997.
- [13] V. Di Virgilio, R. Barbieri, L. T. Mainardi, S. Strano, and S. Cerutti, "A multivariate time-variant ar method for the analysis of heart rate and blood pressure," *MEDICAL ENGINEERING & PHYSICS*, vol. 19, pp. 109–124, 1997.
- [14] L. Guasti, P. Grimoldi, L. Mainardi, M. Petrozzino, E. Piantanida, D. Garganico, A. Diolisi, D. Zanotta, A. Bertolini, W. Ageno, A. Grandi, S. Cerutti, and A. Venco, "Autonomic function and baroreflex sensitivity during a normal ovulatory cycle in humans," *ACTA CARDIOLOGICA*, vol. 54, pp. 209–213, 1997.
- [15] L. T. MAINARDI, A. BIANCHI, R. FURLAN, S. PIAZZA, R. BARBIERI, V. DI VIRGILIO, A. MALLIANI, and S. CERUTTI, "Multivariate time-variant identification of cardiovascular variability signals: A beat-to-beat spectral parameter estimation in vasovagal syncope," *IEEE TRANSACTIONS ON BIOMEDICAL ENGINEERING*, vol. 44, pp. 978–989, 1997.
- [16] L. MAINARDI, H. YLI-HANKALA, I. KOHRONEN, M. G. SIGNORINI, A. BIANCHI, J. TAKALA, K. NIEMINEN, and S. CERUTTI, "Monitoring the autonomic nervous system status in icu patients through cardiovascular variability signals," *IEEE ENGINEERING IN MEDICINE AND BIOLOGY MAGAZINE*, vol. 16(6), pp. 64–75, 1997.
- [17] R. FURLAN, S. PIAZZA, S. DELL'ORTO, F. BARBIC, A. M. BIANCHI, L. T. MAINARDI, S. CERUTTI, M. PAGANI, and A. MALLIANI, "Cardiac autonomic patterns preceding occasional vasovagal reactions in healthy humans," *CIRCULATION*, vol. 98, pp. 1756–1761, 1998.
- [18] C. A. SWENNE, J. FREDERIKS, A. V. BRUSCHKE, R. FURLAN, S. PIAZZA, S. DELL'ORTO, F. BARBIC, A. M. BIANCHI, L. T. MAINARDI, S. CERUTTI, M. PAGANI, and A. MALLIANI, "Neural changes before vaso-vagal syncope (letter)," *CIRCULATION*, vol. 15, 1999.
- [19] A. M. BIANCHI, T. LOCATELLI, L. T. MAINARDI, M. CURSI, G. COMI, and S. CERUTTI, "Event-related brain potentials: Laplacian transformation for multichannel time-frequency analysis," *METHODS OF INFORMATION IN MEDICINE*, vol. 39, pp. 160–163, 2000.
- [20] A. M. BIANCHI, L. MAINARDI, and S. CERUTTI, "Time-frequency analysis of biomedical signals , 2000, 22,3 p. 215-230.," *TRANSACTIONS OF THE INSTITUTE OF MEASUREMENT AND CONTROL*, vol. 22, pp. 215–230, 2000.

- [21] I. KORHONEN, J. KARHU, L. MAINARDI, and S. JAKOB, “Quantification of haemodynamic response to auditory stimulus in intensive care,” *COMPUTER METHODS AND PROGRAMS IN BIOMEDICINE*, vol. 63, pp. 211–218, 2000.
- [22] L. T. MAINARDI, J. KUPILA, K. NIEMINEN, I. KORHONEN, A. BIANCHI, L. PATTINI, J. TAKALA, J. KARHU, and S. CERUTTI, “Single sweep analysis of event related auditory potentials for the monitoring of sedation in cardiac surgery patients,” *COMPUTER METHODS AND PROGRAMS IN BIOMEDICINE*, vol. 63, pp. 219–227, 2000.
- [23] S. CERUTTI, A. M. BIANCHI, and L. T. MAINARDI, “Advanced spectral methods for detecting dynamic behaviour,” *AUTONOMIC NEUROSCIENCE: BASIC & CLINICAL*, vol. 90, pp. 3–12, 2001.
- [24] L. GUASTI, M. PETROZZINO, L. MAINARDI, P. GRIMOLDI, D. ZANOTTA, D. GARGANICO, A. DIOLISI, C. SIMONI, A. GRANDI, G. GAUDIO, S. CERUTTI, and A. VENCO, “Autonomic function and baroreflex sensitivity during angiotensin-converting enzyme inhibition or angiotensin II AT-1 receptor blockade in essential hypertensive patients,” *ACTA CARDIOLOGICA*, vol. 56, pp. 289–295, 2001.
- [25] L. MAINARDI, A. PORTA, G. CALCAGNINI, P. BARTOLINI, A. MICHELUCCI, and S. CERUTTI, “Linear and non-linear analysis of atrial signals and local activation period series during atrial-fibrillation episodes.,” *MEDICAL & BIOLOGICAL ENGINEERING & COMPUTING*, vol. 39, pp. 249–254, 2001.
- [26] E. SETTI, G. TRECCATE, M. FERRARI, L. MAINARDI, and R. MUSUMECI, “Breast magnetic resonance imaging: A computer-based analysis of enhancement curves.,” *JOURNAL OF DIGITAL IMAGING*, vol. 14, pp. 226–228, 2001.
- [27] E. CAIANI, L. MAINARDI, O. BAILLIART, B. CHOLLEY, S. CERUTTI, A. CAPDEROU, and P. VAIDA, “Time-variant spectral analysis of heart rate variability during parabolic flight with and without LBNP,” *JOURNAL OF GRAVITATIONAL PHYSIOLOGY*, vol. 9, pp. 113–114, 2002.
- [28] S. Cerutti, L. Mainardi, M. Petrozzino, C. Simoni, D. Zanotta, G. D’addio, A. Diolisi, D. Garganico, G. Gaudio, A. Grandi, P. Grimoldi, L. Guasti, and C. Klersy, “Hypertension-related hypoalgesia, autonomic function and spontaneous baroreflex sensitivity,” *AUTONOMIC NEUROSCIENCE: BASIC & CLINICAL*, vol. 99, pp. 127–33, 2002.
- [29] L. GUASTI, D. ZANOTTA, L. MAINARDI, M. PETROZZINO, P. GRIMOLDI, D. GARGANICO, A. DIOLISI, G. GAUDIO, C. KLERSY, A. GRANDI, C. SIMONI, and S. CERUTTI, “Hypertension-related hypoalgesia, autonomic function and spontaneous baroreflex sensitivity.,” *AUTONOMIC NEUROSCIENCE: BASIC & CLINICAL*, vol. 99, pp. 127–133, 2002.
- [30] L. T. MAINARDI, A. M. BIANCHI, and S. CERUTTI, “Time-frequency and time-varying analysis for assessing the dynamic responses of cardiovascular control,” *CRITICAL REVIEWS IN BIOMEDICAL ENGINEERING*, vol. 30, pp. 181–223, 2002.

- [31] A. M. BIANCHI, L. T. MAINARDI, and S. CERUTTI, “Non-conventional measurements from ECG recordings: Towards an improvement of diagnostic properties,” *INTERNATIONAL JOURNAL OF BIOELECTROMAGNETISM*, vol. 5, pp. 171–174, 2003.
- [32] L. Mainardi, V. Corino, L. Lombardi, C. Tondo, M. Mantica, F. Lombardi, and S. Cerutti, “Assessment of the dynamics of atrial signals and local atrial period series during atrial fibrillation: Effects of isoproterenol administration,” *BIOMEDICAL ENGINEERING ONLINE*, vol. 3, pp. 37–47, 2004.
- [33] L. MAINARDI, V. CORINO, L. LOMBARDI, C. TONDO, M. MANTICA, F. LOMBARDI, and S. CERUTTI, “Assessment of the dynamics of atrial signals and local atrial period series during atrial fibrillation: Effects of isoproterenol administration,” *BIOMEDICAL ENGINEERING ONLINE*, vol. 3-1, 2004.
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