Scientific and Professional Curriculum Vitae

Enrico Gianluca Caiani
Birthdate: 19/4/1970, Monza, Italy
Home: Via Cattaneo 15, Monza

ACADEMIC CAREER

- 1/2005 – 11/2014: Assistant Professor with tenure track (Researcher), Politecnico di Milano (POLIMI), Dipartimento di Elettronica, Informazione e Bioingegneria (DEIB)
- 03/ 2014: Italian Certification (ASN2012) for tenured Associated Professorship
- 03/ 2014: Italian Certification (ASN2012) for tenured Full Professorship
- 12/2014-today: Associate Professor, POLIMI, DEIB

EDUCATION

- 02/2000: PhD in Biomedical Engineering, POLIMI, XII° class (11/1996-10/1999)**:** "Development of methods for the evaluation of the left ventricular function by signal and image processing of echocardiographic data" (supervisor S. Cerutti).
- 02/1996: Master degree ("Laurea") in Electronic Engineering, POLIMI

POST-DOC EXPERIENCE at Biomedical Eng. Dept, Politecnico di Milano

- 16/3/2000 - 15/3/2002: Research fellow on: "Integration of echocardiographic and cardiovascular variability signals for the evaluation of the autonomic nervous system control"
- 15/3/2002 - 31/3/2004: Research fellow on: "Data fusion and integration of signal/images in physiology and in clinical applications"
- 1/4/2004 - 20/7/2004: Fellowship "dott. "Ennio Denti", SNIA S.p.a., at the Biomedical Eng. Dept, on: "Evaluation of the morphological characteristics of the atrial and ventricular depolarization waveforms from ECG Holter signals"
- 01/04/2004 – 15/1/2005: Research contract at the Biomedical Eng. Dept, Project Young Researchers – FIRB

VISITING RESEARCHER ABROAD at the University of Chicago

- 4/2000-11/2000: **Visiting Research Associate** at the Dept. of Medicine, Noninvasive Cardiac Imaging Laboratories
- 5/2003–10/2003: **Visiting Research Associate** at the Dept. of Medicine, Noninvasive Cardiac Imaging Laboratories
- During the 2005- 2007 timeframe, **Visiting Researcher** at the Dept. of Medicine, Noninvasive Cardiac Imaging Laboratories University of Chicago, IL, USA for a total of 13 month (6 months in 2005, 4 months in 2006 and 3 months in 2007).

SCIENTIFIC PUBLICATIONS AND BIBLIOMETRIC INDICES

Author of 6 book chapters and 91 papers published in peer reviewed journals resulting in a total Impact Factor > 200.
Web of Science: H-index: 21, $H_{i\text{-}50}$:12, sum of Times Cited without self-citations: 1642
Scopus: H-index: 24, $H_{i\text{-}50}$:14, sum of Times Cited without self-citations: 1739
Google Scholar: H-index: 27, $H_{i\text{-}50}$: 18, total citations: 3273 (1632 since 2013)

In addition, author of 130 conference proceeding papers and >100 abstracts presented in international conferences and published in peer reviewed journal supplements.

RESEARCH INDEPENDENCE (European Research Council criterion)

The first important publication (*Circulation*) **without** the participation of **my PhD supervisor** (Prof. Cerutti) was **published in 2001**.

SHORT SUMMARY OF MY RESEARCH PATH AND CURRENT INTERESTS

Since my PhD, I started developing my research career by focusing on cardiac image processing algorithms for quantification of clinical parameters. This interest led me to work with world renowed experts in the field of echocardiography at the University of Chicago, where first 3D echo machines were available, and lately expand my interest also in cardiac MRI. In parallel, I was able to start several projects in the field of space cardiovascular physiology, involving international partners and focusing in both signal (ECG, QT analysis, and more recently ballistocardiography) and image (Echo, MRI) processing to explore effects of microgravity

exposure, by leading (or participating) several international research projects using parabolic flight, bed rest studies, and in-flight research. Since 2015, also related to my offices in the European Society of Cardiology, I started getting interested in e-health topics, and in particular in the use of mobile technologies for patient remote monitoring. As a result, together with my current teaching activities, my research interests also include now exploring smartphone use to detect seismocardiographic parameters, patient engagement and persuasive technologies, health geomatics, and big data applications.

International recognition

PERSONAL AWARDS

- Young Investigators Award 1999, POLIMI
- "Paolo Durst" Award 2001 for the best PhD Thesis in Biomedical Engineering, National Group of Biomedical Engineering (GNB, Italy)
- Rosanna Degani Young Investigator Award 2002, Computers in Cardiology
- “Arthur E. Weyman” Young Investigator's Finalist Award, American Society of Echocardiography, 2007
- Bronze medal for conducting research in weightlessness during 500 parabolas, Novespace, France, 2008
- Moderated Poster Award – Big Data, European Society of Cardiology (ESC) 2017

MENTORED STUDENTS INTERNATIONAL AWARDS (co-author of awarded conference abstracts/proceedings)

- C. Corsi, Rosanna Degani YIA 2003, Computers in Cardiology
- F. Maffessanti, Rosanna Degani YIA 2007, Computers in Cardiology
- E. Votta, Rosanna Degani YIA 2008, Computers in Cardiology
- F. Landreani, Young Researcher Award 2017, eHealth and Bioengineering (EHB)

OTHER MENTORED STUDENTS INTERNATIONAL RECOGNITIONS

- Francesca Braga, Finalist, Rosanna Degani YIA 2004
- Federico Veronesi, Finalist, Rosanna Degani YIA 2005
- Valentina Magagnin, Finalist, EMBS Student Paper Competition (Europe) 2006
- Federico Veronesi, Finalist, European Society of Echocardiography YIA 2006
- Federico Veronesi, Finalist, A. Weiman Young Investigator Award, American Society of Echocardiography, 2007
- Stefania Vaga, Finalist, Whitecloud Award for Best Basic Science Paper, The Scoliosis Research Society, 2008
- Francesca Sibilia, selected for the Young Investigator Competition, ESA symposium 2010
- Concetta Piazzese, Finalist, Rosanna Degani YIA 2013, Computing in Cardiology
- Alba Martin Yebra, selected for the Young Investigator Competition, ESA-ISGP symposium 2014
- Miguel Sotaquira, Finalist, Rosanna Degani YIA 2015, Computing in Cardiology
- Selene Pirola, Semi-Finalist, Rosanna Degani YIA 2015, Computing in Cardiology
- Selene Pirola, Winner, GNB award for Master thesis
- Chiara Carminati, best presentation at Shape 2015
- Concetta Piazzese, best poster award at the 12th IEEE EMBS International Summer School on Biomedical Imaging
- Alba Martin Yebra, Finalist, Rosanna Degani YIA 2016, Computing in Cardiology

PARTICIPATION IN THE EDITORIAL BOARD OF INTERNATIONAL JOURNALS

- Member International Editorial Review Board, “International Journal of Biomedical and Clinical Engineering” (2012-today)
- Member International Editorial Board, “European Heart Journal-Cardiovascular Imaging” (2014-today)

OFFICIAL RESEARCH ROLES IN NATIONAL/INTERNATIONAL HIGHLY QUALIFIED RESEARCH CENTRES

2011-2013: Project coordinator for the development of MRI- and CT-based automatic segmentation tools to support patient-specific cardiac modeling, Institute of Computation Science, Faculty of Informatics at Università della Svizzera Italiana, (USI) and Fondazione Cardiocentro Ticino, Lugano, CH
2014-2015: member of the scientific advisory board, Centre for Computational Medicine in Cardiology, USI, Lugano, CH.
2016-today: Scientific partner, Centre for Computational Medicine in Cardiology, USI, Lugano, CH.
2017-today: member of the innovation advisory board, CompBioMed Centre of Excellence, London, UK
2017 – today: affiliated member of the Istituto di Elettronica e Ingegneria dell’Informazione e Telecomunicazioni (IEIIT), Consiglio Nazionale delle Ricerche (CNR), Turin, Italy

OFFICIAL TEACHING ROLES IN INTERNATIONAL HIGHLY QUALIFIED UNIVERSITIES
2014: Invited Lecturer, University of Lubiana, Faculty of Medicine, PhD in medical sciences

2014 - today: member of the Board, Master in Clinical Echocardiography, Università degli Studi, Milano
2016-today: international Faculty affiliate, University of Illinois in Chicago, Chicago, USA

OFFICES IN THE GOVERNING BODIES OF INTERNATIONAL SCIENTIFIC SOCIETIES

- European Society of Cardiology (ESC):
  Working Group on e-Cardiology:
  - Secretary (2012-2014)
  - Vice-Chair (2014-16)
  - Chair (2016-today)

  Advocacy Board member (2016- today)
  EU eHealth (DG-CONNECT) stakeholder group ESC representative (2016- today)
  Digital Cardiology Board Committee (2018-today)
- Computing in Cardiology: ex-officio member of the Board of Directors (2016-today)

PARTICIPATION IN INTERNATIONAL CONFERENCES, AS A DISTINGUISHED INVITED SPEAKER
Invited Plenary or Keynote Speaker:

- E-Health Forum 2017: Digital Health conference, Athens, 19-22/10/2017: *Empowering patients with apps: is this the solution?*
- IEEE E-Health and Bioengineering, Sinaia (RO), 22-24/06/2017: *E-Health and Patient empowerment*
- IEEE E-Health and Bioengineering, Iasi (RO), 19-21/11/2015: *Cardiovascular signals acquisition and analysis using smartphones: potential, pitfalls and future perspectives*

Invited Speaker:

- CardioEgypt 2018, Cairo 26/2/**2018**: *Clinical applications of e-Health in Cardiology*
- 38° Panhellenic congress, Athens (G), 19-21/10/**2017**: *Mobile technology to identify atrial fibrillation in the general population*
- 27° european meeting on hypertension and cardiovascular protection, Milano, 16/6/**2017**: *Mobile health apps for exercise monitoring: where do we stand?*
- International school of cardiac surgery, 7th course: imaging and the heart Erice, 9 – 14 April **2017**: *Quantitative image processing and computational modelling for valvular assessment*
- Connecting Care! Workshop, Leiden (NL), 25/11/**2016**: *Present activities and future plans of the ESC on e-Health*
- 3° European Congress on e-Cardiology and e-health, Berlin (G), 31/10/**2016**: *Beat-to-Beat Heart Rate Detection by Smartphone's Accelerometers*
- Innovation in Cardiology (IIC), Fermo (IT), 15-17/10/**2015**: *What to consider for prescribing an app*
- Innovation in Cardiology (IIC), Fermo (IT), 15-17/10/**2015**: *Early detection and treatment of arrhythmias with remote monitoring*
- European Society of Cardiology, London (UK), 29 August-3 September **2015**: *Heart rate and blood pressure by mobile technology*
- EHRA-Cardiostim, Milan (IT), June **2015**: *Safety, accuracy and validation of medical smartphone applications*
- International Workshop: Biology in Space: Challenges and opportunities, Pisa (IT), 7 November **2014**: *Parabolic flight and bed rest experiments: Earth platforms to study human physiology in weightlessness*
- European Congress on e-Cardiology & e-Health, Bern (CH), 29-31 October **2014**: *ECG recordings by smartphone applications*
- European Society of Cardiology, Barcellona (ES) 29 Aug-1 Sept **2014**: *Pocket view ECG*
- 8th Conference of the European Study Group on Cardiovascular Oscillations, Fai della Paganella, 25-28 May **2014**: *Changes in ventricular repolarization and cardiac function induced by head-down bed rest*
- Euroecho and other imaging modalities, Istanbul (T) 11-14 Dec **2013**: *Stitching 3D TEE images of descending aorta for atherosclerotic burden quantification*
- 7th TRM Forum on Computer Simulation and Experimental Assessment of Cardiac Function, Lugano (CH) 1-3 Dec **2013**: *3D Left ventricular segmentation from MRI images for patient-specific modeling purposes*
- e-Cardiology symposium, Osijek, Croatia, 16 Mar **2012**: *3D echocardiographic image processing and modelling*
- Euroecho & other imaging modalities, Budapest (H) 9 Dec **2011**: *How to quantify global and regional LV shape? A review of available techniques.*
- 6th TRM Forum on Computer Simulation and Experimental Assessment of Cardiac Function, Lugano (CH) 5 Dec **2011***: Image processing for virtual heart anatomy*
- European Association of Ecocardiography, Theoretical and Practical Course on "Present clinical practice and future developments of three-dimensional echocardiography", Mestre (IT), 27-28 Oct **2011**: *Fusion Imaging: the next frontier* and *Matrix transthoracic and transesophageal transducers and image formation*

- Euroecho, Copenhagen (DK) 9 Dec **2010**: *3D Echocardiographic imaging and modeling: towards the patient-specific virtual mitral valve*
- Conference on Biomedical Issues on long lasting manned mission, Pisa (IT) 8-9 Dec **2009**: *Echocardiography in parabolic flight*
- International Space Life Sciences Working Group, Cardiovascular Workshop, Strasbourg (F) 30-31 Oct **2008,** nominated as key lecturer by ASI and ESA: *The role of echocardiography in the assessment of cardiac function in weightlesseness: our experience during parabolic flights*
- STAFF meeting, Bertinoro (IT) Sept **2008**: *Ventricular repolarization study protocol during ESA bed rest study*
- 3° International Conference on Gravity and Cardiovascular System, Roma e Pratica di Mare, 13-15 Nov **2006**: *Microgravity cardiovascular monitoring*

PARTICIPATION IN THE SCIENTIFIC COMMITTEE OF INTERNATIONAL CONFERENCES

- Member of the Local Organizing Committee of Computers in Cardiology, Bologna, 2008
- **President of the Scientific Committee** of the International Workshop: "New echocardiographic and biomedical engineering approaches for mv prolapse assessment and surgery: the SurgAid project", Milan, 22 October, 2010
- **Core Faculty member** of the European Congress on e-Cardiology & e-Health, Berlin, 8-10/11/17
- Member of the scientific committee for:
  - Euroecho and other imaging modalities 2011, 2013, 2014
  - European Congress on e-Cardiology & e-Health: 2014, 2016
  - MALT ♥ the iMaging And eLectrical Technologies meeting 2015
  - European Society of Cardiology, London 2015
  - IIC- Innovation in Cardiology 2015
  - Computing in Cardiology 2017, 2018

MANAGEMENT AND ORGANISATION OF EVENTS

Organizer: "Human Space Flight: my experience in the STS-120 mission" with the Italian Astronaut Paolo Nespoli, Politecnico di Milano, 27 March 2008

Organizer of the International Workshop: "New echocardiographic and biomedical engineering approaches for mv prolapse assessment and surgery: the SurgAid project", Milan, 22 October, 2010

EXPERT EVALUATOR ACTIVITY

- European Commission (call IST FP6)
- Italian Ministry of Research (PRIN 2008, PRIN 2012, FIRB 2013, SIR 2014)
- Portuguese Foundation for Science and Technology (Health Sciences area, 2009-12)
- Cyprus Research Promotion Foundation (2010 and 2012)
- FWO (2013)
- Netherland Organization of Scientific Research (2014)
- Provincia Autonoma di Bolzano, Italy (since 2015)
- Provincia Autonoma di Trento, Italy (since 2017)
- CNRS, France (2017)

Reviewer for the following international engineering journals:

Medical & Biological Engineering & Computing, IEEE Transactions on Biomedical Engineering, IEEE Transactions on Medical Imaging, IEEE Transactions on Information Technology in BioMedicine, IEEE Transactions on Signal Processing, Physiological Measurements, Digital Signal Processing, Computers in Biology and Medicine, International Journal for Numerical Methods in Biomedical Engineering, Journal of Healthcare Engineering, Methods and Information in Medicine, Cardiovascular Engineering and Technology, Journal of Medical Engineering and Technology, Sensors

Reviewer for the following international physiology or cardiology journals:

Journal of Applied Physiology, Heart and Circulatory Physiology, European Journal of Applied Physiology, Journal of Clinical Ultrasound, Journal of the American Society of Echocardiography, European Heart Journal Cardiovascular Imaging, JACC Cardiovascular Imaging, Critical Care, Plos One, Europace, Circulation Cardiovascular Imaging, Journal of Magnetic Resonance Imaging

SCIENTIFIC RESPONSIBILITY OF COMPETITIVE NATIONAL AND INTERNATIONAL RESEARCH PROJECTS WITH FUNDS ALLOCATED TO POLIMI UNIT

European and Italian Space Agency:

- PI and International Coordinator: "QT-Bed: *evaluation of changes in ventricular repolarization and its relation with heart-rate during long-term bed-rest*", call AO-BR-13, ASI DC-VUM-2016-068 (2014-today): 64 K€
- PI of the project "*3-D Ballistocardiography in microgravity*", call AO-ILSRA-09, ASI DC-MIC-2011-036 (2013-today) : 67 KEuro
- PI and International Coordinator: "QT-Bed: *Evaluation of changes in cardiac repolarization during bed-rest experiments*", call AO-BR-09, ASI DC-MIC-2011-036 (2013-17): 48 K€
- Co-PI: "*AEQUABED: Automated Echocardiographic QUAntification during BED-rest experiments*", call AO-BR-09, ASI DC-MIC-2011-036 (2013-16): 36.5 K€
- PI and International Coordinator: "*Evaluation of changes in cardiac repolarization during bed-rest experiments*", call AO-BR-06, ASI MED-DC-064 (2010-2014): 73 K€
- Co-PI:"*AEQUABED: Automated Echocardiographic QUAntification during BED-rest experiments*", call AO-BR-06, ASI MED-DC-064 (2010-2014): 40 K€

MIUR:

- **National Coordinator** of the project "*SurgAid: New methods for diagnosis and support in mitral valve surgery repair procedures based on the integration of finite element modelling and 4D echocardiographic advanced image processing*", **PRIN 2008-2010**, Italian Ministry of Research and University: 71 K€.

PARTICIPATION TO OTHER FUNDED INTERNATIONAL RESEARCH PROJECTS AS CO-INVESTIGATOR WITH ALLOCATED FUNDS:

- Co-I: "*Virtual Pathological Heart of the Virtual Physiological Human (VPH^2)*", European Union FP7-ICT-2007-2, 2008-2011: inside the POLIMI unit, direct responsibility of the image processing task with respective 57 k€ allocated funds
- Co-I: "*Development of methods an algorithms for the quantitative evaluation of the right ventricular function from real-time 3D echocardiography*", MIUR-INTERLINK, 2006-2007: inside the POLIMI unit, direct responsibility of the image processing task with respective 11 Keuro allocated funds.

OTHER PARTICIPATIONS TO PROJECTS (no direct allocated funding)

- Co-I of the project "Linking excellence in biomedical knowledge and computational intelligence research for personalized management of Cardio Vascular Disease within Personalized Health Care", European Union H2020-TWINN-2015
- Co-PI of the project "Real-Time Three-Dimensional Echocardiography during parabolic flight", European Space Agency, 2005-2006
- Co-I of the project "PROJET ASTROCARD: développement d'un système automatique d'interprétation du vectocardiogramme (Decarto). Adaptations circulatoires lors des variations de pesanteur (Echo-Doppler)", Centre National d'Etudes Spatiales (CNES), France, 2002-2004 (PI: Prof. P. Vaida)
- Co-I of the project "DRESH – Development and Research on the Electrocardiographic Signal Holter", European Union, Eureka, 2002-2003 (Coordinator: Prof. S. Cerutti)
- Co-I of the project "Effect of the Lower Body Negative Pressure on the cardiac electrical activity and the hemodynamical parameters", Centre National d'Etudes Spatiales (CNES), France, 2001-2002 (PI: Prof. P. Vaida)
- Co-I of the project "Methodology an technology for the evaluation of structural and functional relationships between autonomic and central nervous systems", PRIN-MURST, 2000-2002 (Coordinator: Prof. S. Cerutti)
- Co-I of the project "Development of quantitative procedures for the objective assessment of regional myocardial perfusion and function", American Heart Association, 2000-2001 (PI Prof. V Mor-Avi)

OTHER PERSONAL FUNDING since Academic Position (2005)

- Contract from Devital, Milan, for app usability design: **7KEuro** (2017)
- Contribution from Ospedale San Donato, Milano, for research activity and activation of research fellowships: **25 KEuro** (2016)
- Contributions from the Universitá della Svizzera Italiana, Lugano, Switzerland, 2013:
  - funding for a PhD fellowship in Biomedical Engineering at Politecnico di Milano: **61 Keuro**
  - contribution for research activity on patient-specific image processing for modelling of cardiac electrophysiology: **10 KEuro**
- Contributions from Centro Cardiologico Monzino, Milano, for research activity and activation of research fellowships:
  - 2007: **22 KEuro**
  - 2008: **22 KEuro**
  - 2009: **22 KEuro**
  - 2010: **22 KEuro**
- Contribution from Sorin Biomedica Cardio Srl for research activity in "Software development for 3D analysis of mitral annulus motion from 3D echo images, and quantitative evaluation of the new implantable mitral ring MEMO3D", 2008: **22 KEuro**

ACTIVE SCIENTIFIC COLLABORATIONS:

- Noninvasive Cardiac imaging Laboratory (Prof. Lang e Mor-Avi), University of Chicago Hospitals, Chicago, USA (since 2000)
- Department of Electronic Engineering and Communications (Prof. Laguna), Aragón Institute of Engineering Research (I3A), Zaragoza University (since 2006)
- Imaging Unit (Dr. Pepi), Centro Cardiologico Monzino IRCCS and Università di Milano, Milano (since 2007)
- Fondazione Cardiocentro Ticino (Prof. A. Auricchio), Universitá della Svizzera Italiana (Prof. R. Krause), Maastricht University (Prof. F. Prinzen) (since 2010)
- Université Libre de Bruxelles, Erasmus hospital, Faculty of Medicine, Dept. of Cardiology (Dr. P.F. Migeotte) (since 2011).

OTHER QUALIFICATIONS

- 2002: certification for human space flight in long-term missions, European Astronaut Center, Koln, Germany
- 2001-02: qualified in the first three places in the selection of the Italian Space Agency for an Italian Astronaut inside the European Astronaut Corps
- 2001-today: participation to 14 parabolic flight campaigns (ESA, CNES) for a total of more than 900 parabolas.

CURRICULUM of the TEACHING AND INSTITUTIONAL ACTIVITY

Since 2000: Expert ("Cultore della materia") in *Bioimaging and Biological signal processing*, Politecnico di Milano

1. Teaching at Politecnico di Milano

- A.A. 2003-2004 - today: Appointed Professor of the class *Biomedical Image Processing Laboratory*, Master's degree ("Laurea Specialistica") in Biomedical Engineering (5 credits)
- A.A. 2015-2016 - today: Appointed Professor of the class *ehealth: applications*, Master's degree ("Laurea Specialistica") in Biomedical Engineering (5 credits)
- A.A. 2001-2002 - today: Faculty of the class *Experimental Design and Statistical Analysis*, PhD School in Biomedical Engineering, (5 credits) – responsible for the part (12 hours) relevant to statistical analysis

Post-Laurea Master teaching activity:

- A.A. 1999-00 and 2000-01: Faculty in the class *Analysis of biodata, biosignals and bioimages,* Master in Telemedicine, I° and II° Editions, CEFRIEL, Politecnico di Milano
- A.A. 2002-03: Faculty in the class *Analysis of biodata, biosignals and bioimages,* Master in Internet for the Health system and telemedicine, CEFRIEL, Politecnico di Milano
- A.A. 2006-2007: Faculty in the class *Imaging for surgery and Image Fusion*, Master in Engineering in Surgery, Politecnico di Milano, Milano
- A.A. 2007-2008: Faculty in the class *Imaging for surgery and Image Fusion*, Master in Innovation in Surgery, Politecnico di Milano, Milano

2. Teaching at other universities

- A.A. 2002-03, 2003-04 and 2007-08: Faculty in the class *Signal and Image processing*, Master in Clinical Echocardiography, Università degli Studi, Milano
- May 2011: Faculty (4 h) in the class *Clinical pharmacology of biotechnological drugs*, Pharmacological Strategies for cardiovascular pahtologies Module, Master Degree in Pharmacological biotechnologies, Università degli Studi, Milano
- Oct 2014: Faculty (6 h) in the class *Medical Imaging*, Interdisciplinary PhD program in Biomedicine, Clinical Medical Science, University of Ljubljana, Slovenia

3. *PhD Board obligations*

- 2012- 2017: member of the PhD board in Biomedical Engineering, POLIMI
- 2018-today: member of the PhD board in Data analysis and decision science, POLIMI
- External PhD Examiner at Hasselt University, Hasselt, Belgium (2018)
- External PhD Examiner at the Universitè Pierre et Marie Curie - Sorbonne, Paris, Ecole Doctorale informatique, télécommunications et életrocnique (16 June 2015)
- External PhD Examiner at the Regional Medical Physics Department, Freeman Hospital, Newcastle upon Tyne, UK (2007)

Mentoring activity

In the past years, PhD thesis Advisor of:

- Dr. Federico Veronesi, *Development of advanced three-dimensional image processing methods from different cardiac imaging techniques for clinical parameters extraction*, PhD in Biomedical Engineering, XX° cycle 2005-2008, Politecnico di Milano.
- Dr. Valentina Magagnin, *Biomedical signal processing for the assessment of cardiovascular response during rehabilitation*, PhD in Biomedical Engineering, XXI° cycle 2006-2009, Politecnico di Milano.
- Dr. Francesco Maffessanti, *Novel image based approaches for the evaluation of cardiac remodeling*, PhD in Biomedical Engineering, XXII° cycle 2007-2010, Politecnico di Milano.
- Dr. Miguel Sotaquira, *Development of computational tools for the quantitative characterization of the mitral valve using three-dimensional ultrasound data*, PhD in Biomedical Engineering, XXV° cycle 2010-2013, Politecnico di Milano.

- Dr. Maria Chiara Carminati, *A framework for intra-modality image fusion applied to cardiac magnetic resonance imaging and 3D transesophageal echocardiography of the descending aorta*, PhD in Biomedical Engineering, XXVI° cycle 2011-2014, Politecnico di Milano.
- Dr. Concetta Piazzese, *An inter-modality statistical shape modelling approach for the 3D segmentation of cardiac structures from magnetic resonance images*, PhD in Biomedical Engineering, XXVIII° cycle 2012-2016, Politecnico di Milano.
- Dr. Alba Martin Yebra, *Assessment of ventricular repolarization instability and cardiac risk stratification in different pathological and abnormal conditions*, PhD in Biomedical Engineering, XXIX° cycle 2013-2017, Politecnico di Milano.

Currently, supervisor of the PhD student Federica Landreani (XXXII° cycle)

4. Other mentoring activity

- Since 1998, Supervisor of about 100 Master and Bachelor thesis in Biomedical Engineering at Politecnico di Milano
- Alta Scuola Politecnica (http://www.asp-poli.it/presentation/), A.A. 2005-06: Tutor for the project "Intelligent diagnostic tools and smart drug delivery: biomedical applications of fluorinated fluids".

5. Institutional activity in the Council of Study of Biomedical Engineering, Politecnico di Milano

- Since 2016, responsible of the agreement of double degree with the University of Illinois in Chicago, USA
- Since 2016, member of the Erasmus exchange student commission
- Since 2014, member of the Joint commission for review (Commissione paritetica per il riesame)
- 2012-2016: responsible of the commission for student selection for admission to specific classes (Laboratories, Projects)