

Scientific Curriculum – LAURA CERCENELLI

1. Personal details

Name: Laura Cercenelli
Nationality: Italian
Place and date of birth: Jesi (AN), Italy, 08/11/1978
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Actual Affiliation eDIMES Lab - Laboratory of Bioengineering,
Department of Medical and Surgical Sciences, University of Bologna,
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Actual Position:

- Adjunct Professor at the Department of Biomedical and Neuromotor Sciences, School of Medicine, University of Bologna;
- Permanent employment contract as a technician at eDIMES Lab, Department of Medical and Surgical Sciences, University of Bologna.

2. Education

- 2003: Master Degree (Italian Laurea) in Biomedical Engineering at the Polytechnic of Milano, Italy (100/100 cum laude).
- 2004: Professional Master (I Level) Degree in Informatic technologies for the analysis and processing of biomedical images, at University of Camerino (MC, Italy) and I.N.R.C.A. (Istituto Nazionale Riposo e Cura Anziani) of Ancona (Italy).
- 2006: PhD Degree in Electromagnetism and Bioengineering at Marche Polytechnic University, in consortium with University of Bologna.
- 2018: Certified Master Degree in Quality Management Systems for medical device companies (organized by MIDI GROUP, ISO 9001: 2015 Certified High Professional Training Company, ACCREDIA and ISO 29990: 2011 ACCREDIA):
 - Certificate of qualification as Auditor / Lead Auditor of Quality Management Systems in accordance with ISO 9001: 2015-Ric. AICQ-SICEV (accredited by Accredia);
 - Certificate of qualification as Quality Assurance Specialist for Medical Devices and In Vitro Diagnostics; Certificate of qualification of Internal Auditor of Quality Management Systems within the DM (pursuant to ISO 13485: 2016);
 - Training certificate for MDSAP (Medical Device Single Audit Program).

3. Professional Experience

- **2006-2007:** Research Fellow at the Surgery and Transplantation Department, University of Bologna. *Research Project: “Development and in vivo experimental evaluation of a device for monitoring cardiac function”*

- **2008-2013:** Research Fellow at the Clinical Department of Radiologic and Hystocytopathologic Sciences, University of Bologna. *Research Project: “Study of new indices and new methodologies associated with the use of implantable cardiac devices for monitoring heart failure”*
- **2014-2017:** Research Fellow at the Experimental, Diagnostic and Specialty Medicine Department (DIMES) of the School of Medicine, University of Bologna, Bologna (Italy). *Research Project: “Study and prototype development of new sensor systems for monitoring cardiac mechanics”*
- **2017-2019:** Research Fellow at the Department of Biomedical and Neuromotor Sciences of the School of Medicine, University of Bologna. *Research Project: “Video Optical See-Through Augmented Reality Surgical System”*.
- **2019-2020:** Coordinated and Continuous Collaboration with Department of Biomedical and Neuromotor Sciences (DIBINEM) of the School of Medicine, University of Bologna. *Research Project: “Clinical trial of the VOSTARS (Video Optical See-Through Augmented Reality Surgical System) augmented reality wearable device for surgical guide”*.
- **2020-2021:** Coordinated and Continuous Collaboration with Experimental, Diagnostic and Specialty Medicine Department (DIMES) of the School of Medicine, University of Bologna. *Research Project: “Support activities for research and teaching projects for the 3D Area and the SimVR Area of the eDIMESLab”*
- **Since October 2021:** Permanent employment contract as technician, at eDIMES Lab, Department of Experimental Diagnostic and Specialty Medicine (DIMES), University of Bologna.
- **Since 2017:** Adjunct Professor at the School of Medicine, University of Bologna, Bologna (Italy).

4. Scientific activity

Main research topics

- Implantable sensors for cardiac function monitoring
- Sensorized prosthetic heart valves
- Technologies for patient-specific simulation in medical education
- Patient-specific 3D modelling and 3D printing for pre-operative planning
- Virtual and augmented reality in medicine

Other

- Eye tracking systems
- Robotic systems for interventional cardiac procedures
- Cardiac monitoring by non-invasive wearable systems

- **Implantable sensors for monitoring cardio-pulmonary mechanics**

The research activity is addressed to the study, development and in vitro/in vivo animal evaluation of new implantable sensors for the continuous monitoring of cardio-pulmonary function. The aim is to provide innovative tools to early detect any cardiac function impairment in patients with cardiovascular disease, including Heart Failure, and therefore to allow early therapeutic actions for these patients.

- **Sensorized prosthetic heart valves**

The research is addressed to study and develop innovative sensorized prosthetic heart valves, based on the integration of miniaturized electrodes and electronic circuits into the prosthesis structure to continuously monitor the valve leaflet motion, therefore the valve functionality after implantation, specifically using an impedance-based sensing principle.

- **Technologies for patient-specific simulation in medical education**

The research activity is addressed to evaluate sophisticated patient-specific virtual reality simulators for endovascular (EVAR) procedures, more specifically to study their efficacy for pre-operative planning and for boosting the learning curve of trainees in vascular surgery.

The activity is also focused on the study of algorithms/models to predict vessel deformations during EVAR procedures due to interaction with interventional devices, aimed at improving fidelity of virtual reality simulators.

The research is carried out in collaboration with U.O. Vascular Surgery of S.Orsola-Malpighi Hospital in Bologna.

- **3D modeling and 3D printing of anatomical models**

The research activity is addressed to create 3D virtual anatomical models from diagnostic images (TC, cone beam, RMN) using dedicated software for image segmentation and processing of 3D volumes. The virtual models can be converted in .stl files intended for 3D printers. The obtained 3D models (virtual and printed), intuitive and very informative, allow the surgeon to better understand anatomic relationships and structures of surgical interest (such as vascularization, position and extension of tumors), therefore to carefully plan the optimal intervention strategy. Moreover, the 3D printed models may be useful for education and improved patient understanding of surgical procedures.

The research is carried out in collaboration with various areas of specialized surgery (vascular, maxillofacial, urological, cardiac surgeries) of S.Orsola-Malpighi Hospital in Bologna.

- **Virtual and Augmented Reality in Medicine**

Another field of study concerns the application of technologies based on augmented reality (AR) for the creation of innovative intraoperative guidance systems that offer the surgeon the possibility of "increasing" his vision of the operating field with digital information content, such as ex. patient imaging, superimposed and appropriately recorded in natural vision [IA.24, IA.26, I.38]. The research is carried out in collaboration with the U.O of Maxillofacial Surgery of the University Hospital of Bologna Policlinico S. Orsola-Malpighi.

- **Eye tracking systems**

The research activity is addressed to study and develop new software tools to ease the use of eye tracking systems in the clinical ophthalmology practice to quantify the oculomotor behavior in subjects with normal vision, as well as in patients with ophthalmologic diseases.

The research is carried out in collaboration with U.O. Ophthalmology of S.Orsola-Malpighi Hospital in Bologna.

- **Robotic systems for interventional cardiac procedures**

The research activity has been addressed to the study and development of new robotic systems for remote handling of catheters in the cardiovascular system during interventional cardiac procedures performed under fluoroscopic guidance. These robotic systems are intended for reducing/avoiding X-ray exposure for the operator and for ensuring a more repeatable and reproducible maneuvering of catheters if compared with manual handling.

- **Cardiac monitoring by non-invasive wearable systems**

The research activity is focused on the study and development of new systems for non-invasive cardio-respiratory monitoring: systems based on non-contact Ultra Wide Band radar technologies for vital signs monitoring in critical life conditions such as in space station life; innovative multi-sensor wearable patch systems for monitoring the electro-mechanical cardiac activity in patients with cardiac diseases.

4.1. Research Projects

Laura Cercenelli has taken part in the following research projects:

- National Research Project (PRIN2005) “Development and in vivo experimental evaluation of a device for cardiac function monitoring”;
- NIMURRA project “Non-invasive monitoring by ultra wide band (UWB) radar of respiratory activity of people inside a spatial environment” – ASI (Italian Space Agency) call for ideas: "Biotechnology for Human Space Exploration" 2010;
- Focused Fundamental Research (RFO) Project, University of Bologna (from 1999 to 2013);
- Experimental research projects involving in vivo testing on animals (sheep) of innovative implantable devices for cardiac applications (from 2007 to 2013);
- VOSTARS (Video Optical See-Through Augmented Reality surgical System): EU- H2020-ICT-2016-1 Project (01/12/2016-30/11/2019).

5. Other scientific activities

5.1. Reviewer activity

Technical Reviewer for journals:

- *Medical Engineering & Physics*;
- *ASAIO Journal*;
- *Journal of Personalized Medicine*;
- *Frontiers in Bioengineering and Biotechnology*;
- *Frontiers in Medical Technology*;
- *Applied Sciences*;
- *Sensors*;
- *Scientific Reports*;
- *Journal of Mechanics in Medicine and Biology*;
- *IEEE Journal of Biomedical and Health Informatics*;
- *Computer Methods and Programs in Biomedicine*;
- *International Journal of Computer Assisted Radiology and Surgery*;

Technical Reviewer for conference papers:

- 6th International Conference on Biomedical Engineering and Biotechnology (ICBEB 2017);
- Poster Track ISMAR 2022: 21st IEEE International Symposium on Mixed and Augmented Reality.

5.2. Editorial activity

Editorial Board membership

- *Medical Devices: Evidence and Research* (Role: Editorial Board Member);
- *Frontiers in Bioengineering and Biotechnology* (Role: Review Editor) [Feb 2020-Aug 2022 for Section “Bionics and Biomimetics”; since Aug 2022 for Section “Biosensors and Biomolecular Electronics”];
- *Sensors* (Role: Topical Advisory Panel Member);
- *Applied Sciences* (Role: Editorial Board Member).

Guest/Topic Editor:

- *Sensors* (Special Issue: “Novel Implantable Sensors and Biomedical Applications”- 2022)
- *Frontiers in Bioengineering and Biotechnology* (Research Topic: “Extended Reality in medical practice: innovative applications, challenges and prospects” – 2022-2023).

5.3. International invited presentations in Conferences

Year	Place	Date	Conference
2006	Nizza	13-17/06	CARDIOSTIM 2006: “15th World Congress in cardiac electrophysiology and cardiac techniques”
2008	Pisa	3-5/07	I Congresso Nazionale di Bioingegneria 2008
	Bologna	14-17/09	Computers in Cardiology 2008
2010	Torino	8-10/07	II Congresso Nazionale di Bioingegneria 2010
2011	Porto	9-12/10	XXXVIII Congress of the European Society for Artificial Organs (ESAO 2011)
2012	Roma	26-29/06	III Congresso Nazionale di Bioingegneria 2012
2014	Pavia	25-27/06	IV Congresso Nazionale di Bioingegneria 2014
2014	Bologna	3-5/09	XIX International Conference on Mechanics in Medicine and Biology”
2015	Leuven	2-5/09	XLII Annual ESAO Congress
2016	Napoli	25-27/06	V Congresso Nazionale di Bioingegneria 2016
2017	Bologna	26-30/06	Summer School Vascular Surgery 2017
2018	Bologna	23/02	3DBO4: Chirurghi e ingegneri insieme: l’innovazione in Chirurgia Maxillo-facciale esperienze in atto
	Bologna	19/04	Convegno IDBN a EXPOSANITA’ 2018. La progettazione personalizzata e la stampa additiva per i moderni trattamenti chirurgici: comunicazione, pianificazione, produzione, esecuzione

	Bologna	07/05	3DBO4 in clinica odontoiatrica: Protesisti, Chirurghi e ingegneri insieme
	Bologna	5-8/06	SIAM Conference on Imaging Science 2018. Minisimposium "Instruments and techniques for biomedical research"
	Bologna	25-29/06	Summer School Vascular Surgery 2018
	Pavia	5/09	II Congresso IDBN e III Thematic Conference ESB-ITA 3D Printing and Biomechanics
2019	Lecce	12-15/06	XXI Congresso Nazionale SICMF
	Bologna	24-28/06	Summer School Vascular Surgery 2019
	Bologna	30/09-01/10	ESB-ITA-2019
	Pisa	28-30/10	III Congresso IDBN - 3D Printing and Bioprinting in Medicine and Surgery
2020	Bologna	21/02	3DBO5- Dalla realtà aumentata alla chirurgia personalizzata
2021	Bologna	06/07	Summer School Vascular Surgery 2021
	Bologna	19-22/07	Summer School - Tecnologie digitali 3D per la Chirurgia maxillo-facciale
2022	Bologna	14-18/03	Winter School - Tecnologie digitali 3D per la Chirurgia maxillo-facciale
	Bologna	28/06	Summer School Vascular Surgery 2022
	Bologna	04-08/07	Summer School - Tecnologie digitali 3D per la Chirurgia maxillo-facciale
	Taipei	12/07	9th World Congress of Biomechanics 2022
2023	Leuven	01-02/06	3D Printing in Hospitals Forum 2023 (organized by Materialise Medical).
	Lecce	07-09/09	XR Salento 2023 international conference on eXtended Reality
	Torino	18-19/09	XII Annual Meeting of the ESB-ITA

6. Collaborations with Industry

- From 2004-2006: research activity on new technologies in cardiology (implantable cardiac devices) for the company “TRE ESSE Progettazione Biomedica s.r.l.”, Bologna; involvement in research consulting activities for “Sorin Biomedica Cardio s.r.l.”.
- Since 2010: Research activity as part of agreements between the University of Bologna and biomedical companies, about:
 - the study on requirements and the high-level design of advanced and innovative user interface for CRRT (Continuous Renal Replacement Therapy)/PLASMA management/Decapneization device (with Medicon Ingegneria S.r.l.)
 - the study on Minute Ventilation monitoring in implantable cardiac devices (with Medico S.p.A.).

7. Academic activity

7.1. Teaching activity

- Since 2020 to now: teaching of “Computer Science” (First cycle degree programme in “Orthopaedics techniques”; First cycle degree programme in “Dietistic” at School of Medicine of University of Bologna).
- 2017/2018: teaching of “Computer Science” (First cycle degree programme in “Orthopaedics techniques” at School of Medicine of University of Bologna).
- Since 2004 she has supported the preparation of teaching material for Degree Courses at School of Medicine of University of Bologna: “Bioelectronics and Informatics” (Neurophysiopathology Techniques); “Instrumentation” (Orthoptic and Ophthalmologic Assistance); “Electrical and electronic measurements” (Neurophysiopathology Techniques); “Industrial Bioengineering” (Podology).
- From 2005 to 2008 she hold seminars on image processing techniques for the analysis of retinographic images for the Professional Master (I Level) “Informatic technologies for the analysis and processing of biomedical images” organized by University of Camerino and I.N.R.C.A. (Istituto Nazionale Riposo e Cura Anziani).
- Teachings/courses as part of University Masters:
 - 2019-2020: Lecture: “From medical imaging to anatomical 3D models” (Annual Master “Innovation in eXtended Reality” – University of Bologna);
 - 2021-2022: Lecture: “Biomedical Technologies” - Second level University Master's Degree "Clinical Engineering and Medical Devices"

7.2. Supervision/tutoring of Master/PhD students

Since 2005 she has carried out supervision/tutoring activities for students of Master Degree in Biomedical Engineering (20 thesis), in Electronic/Mechanical Engineering (6 thesis) and in Medicine&Surgery (2 thesis). Co-supervisor of 7 PhD projects of the PhD Programme: “Surgical Sciences and Innovative Technologies”, University of Bologna.

8. Publications

N. Publications (Scopus, Oct 2023): **80**;

H-Index (Scopus, Oct 2023): **19**

N. Citations (Scopus, Oct 2023): **794**

Articles in International peer-reviewed indexed journals (I)

- I.1. P. Cacciari, R. Giannoni, E. Marcelli, L. Cercenelli. “Considerations on isolation rooms and alternative pressare ventilation systems”. *Annali di Igiene, Medicina Preventiva e di Comunità* **2004**; 16: 777-801 (ISSN: 1120-9135).
- I.2. P. Cacciari, R. Giannoni, E. Marcelli, L. Cercenelli. “Valutazione dei costi di un impianto di ventilazione per un blocco operatorio: confronto tra sistema “ultraclean” e convenzionale” *Annali di Igiene, Medicina Preventiva e di Comunità* **2004**; 16: 803-809 (ISSN: 1120-9135).
- I.3. E. Marcelli, G. Plicchi, L. Cercenelli, F. Bortolami. “First experimental evaluation of cardiac apex rotation with an epicardial Coriolis force sensor” *Asaio*, **2005** Nov/Dic; 51(6):696-701 (Casa editrice: Lippincott Williams & Wilkins; Luogo di pubblicazione: Hagerstown, MD (U.S.A.); ISSN: 1058-2916)
- I.4. E. Marcelli, F. Scalambra, L. Cercenelli, G. Plicchi “A new hermetic antenna for wireless transmission systems of implantable medical devices” *Medical Engineering & Physics* **2007**, 29: 140-147 (ISSN: 1350-4533).
- I.5. E. Marcelli, L. Cercenelli, M. Parlapiano, R. Fumero, P. Bagnoli, M.L. Costantino, G. Plicchi “Effect of right ventricular pacing on cardiac apex rotation assessed by a gyroscopic sensor” *Asaio* **2007**; 53: 304-309 (ISSN: 1058-2916).
- I.6. L. Cercenelli, E. Marcelli, G. Plicchi “Initial experience with a telerobotic system to remotely navigate and automatically re-position standard steerable EP catheters” *Asaio* **2007**; 53(5):523-529 (ISSN: 1058-2916).
- I.7. P.P. Delnoy, E. Marcelli, H. Oudeluttikhuis, D. Nicastia, F. Renesto, L. Cercenelli, G. Plicchi “Validation of a peak endocardial acceleration-based algorithm to optimize cardiac resynchronization: early clinical results” *Europace* **2008**; 10(7):801-8 (ISSN: 1099-5129).
- I.8. E. Cutrì, P. Bagnoli, E. Marcelli, F. Biondi, L. Cercenelli, M.L. Costantino, G. Plicchi, R. Fumero “A mechanical simulator of cardiac wall kinematics” *Asaio* **2010**; 56:164-71 (ISSN: 1058-2916).
- I.9. E. Marcelli, P. Cacciari, D. Pedrini, L. Cercenelli, R. Giannoni, M. Musaico, G. Plicchi. “Stato dell’arte ed evidenze scientifiche sul ruolo dei sistemi di ventilazione a flusso unidirezionale nella riduzione delle infezioni del sito chirurgico” *Annali di Igiene, Medicina Preventiva e di Comunità* **2010**; 22: 369-381 (ISSN: 1120-9135).
- I.10. P. Bagnoli, N. Malagutti, D. Gastaldi, E. Marcelli, E. Lui, L. Cercenelli, M. L. Costantino, G. Plicchi, R. Fumero “Computational finite element model of cardiac torsion” *Int J Artif Organs*. **2011** Jan;34(1):44-53 (ISSN: 0391-3988).
- I.11. G. Finzi, M.T. Malaguti, L. Lama, G. Plicchi, M. Musaico, L. Cercenelli, E. Marcelli, D. Pedrini, M. Rizzoli. “An innovative technological building: new Surgery and Emergency Centre of University Hospital Authority S. Orsola-Malpighi Polyclinic”. *(E)Hospital* **2011**; 13(4):30-34 (ISSN: 1374-321X).
- I.12. G. Finzi, D. Pedrini, G. Plicchi, M. Musaico, L. Cercenelli, E. Marcelli, R. Giannoni. “The new central sterile supply department of university hospital authority St. Orsola-Malpighi Polyclinic”. *(E)Hospital* **2011**; 13(5):29-31 (ISSN: 1374-321X).
- I.13. E. Marcelli, P. Cavallari, A. Frigerio, G. Colletti, F. Biglioli, R. Fanti, G. Plicchi, L. Cercenelli. “A new gyro-based method for quantifying eyelid motion”. *Int J Artif Organs* **2013**; 36(3):195-202 (ISSN: 0391-3988).
- I.14. I. Corazza, G. Melandri, S. Nanni, E. Marcelli, L. Cercenelli, D. Bianchini, F. Vignarelli, R. Zannoli. “Passive counterpulsation: biomechanical rationale and clinical evaluation” *Journal of Mechanics in Medicine and Biology*, **2013**, 13(5):1340004-1-11. DOI: 10.1142/S0219519413400046. (ISSN: 0219-5194).
- I.15. I. Corazza, C. Pinardi, L. Manco, D. Bianchini, L. Cercenelli, E. Marcelli, R. Zannoli. “Biomechanical approach to the clinical treatment of pulmonary hypertension” *Journal of Mechanics in Medicine and Biology*, **2013**, 13(5):1340005-1-14. DOI: 10.1142/S0219519413400058. (ISSN: 0219-5194).

- I.16. I. Corazza, D. Bianchini, E. Marcelli, L. Cercenelli, R. Zannoli. "Passive aortic counterpulsation: Biomechanical rationale and bench validation" *Journal of Biomechanics*, **2014**, 47:1618–1625. DOI: 10.1016/j.jbiomech.2014.03.001. (ISSN: 0021-9290).
- I.17. E. Marcelli, M. L. Costantino, T. Villa, P. Bagnoli, R. Zannoli, I. Corazza, L. Cercenelli. "Effect of intermediate ZrO₂-CaO coatings deposited by cold thermal spraying on the titanium-porcelain bond in dental restorations". *J Prosthet Dent; Journal of Prosthetic Dentistry*, **2014**, 112(5):1201–1211. DOI: <http://dx.doi.org/10.1016/j.prosdent.2014.05.005>. (ISSN: 0022-3913).
- I.18. L. Cercenelli, E. Marcelli. "Cardiac apex rotation assessed by an implantable gyro sensor: correlation with a LV pressure-derived myocardial performance index in experimentally induced ischemia" *Journal of Mechanics in Medicine and Biology*, **2015**, 15(2):1540013-1-6. [Special Issue on 19th International Conference on Mechanics in Medicine and Biology] DOI: 10.1142/S0219519415400138. (ISSN: 0219-5194).
- I.19. E. Marcelli, S. Pirani, I. Corazza, L. Cercenelli. Electroloc: a simple, fast and accurate system for localization of endocardial catheters. *Journal of Mechanics in Medicine and Biology*, **2015**, 15(4): 1550062-1-11. DOI: 10.1142/S0219519415500621. (ISSN: 0219-5194).
- I.20. E. Marcelli, L. Cercenelli. Cardio-respiratory mechanical simulator for in vitro testing of impedance minute ventilation sensors in cardiac pacemakers. *Asaio J*, **2016** March/April; 62(2):150-156. DOI: 10.1097/MAT.0000000000000302. (Casa editrice: Lippincott Williams & Wilkins; Luogo di pubblicazione: Hagerstown, MD (U.S.A.); ISSN: 1058-2916).
- I.21. E. Marcelli, A. Capucci, G. Minardi, L. Cercenelli. Multi-Sense CardioPatch: a wearable patch for remote monitoring of electro-mechanical cardiac activity. *Asaio J*. Published Ahead-of-Print Post Acceptance: September 20, **2016**, doi: 10.1097/MAT.0000000000000446.
- I.22. L. Cercenelli, G. Tiberi, I. Corazza, G. Giannaccare, M. Fresina, E. Marcelli. SacLab: A toolbox for saccade analysis to increase usability of eye tracking systems in clinical ophthalmology practice. *Comput Biol Med*. **2017** Jan 1;80:45-55. doi: 10.1016/j.combiomed.2016.11.007.
- I.23. L. Cercenelli, B. Bortolani, E. Marcelli. CathROB: A Highly Compact and Versatile Remote Catheter Navigation System. *Applied Bionics and Biomechanics*. 2017;2017:2712453. doi: 10.1155/2017/2712453. Epub **2017** May 25 (ISSN: 1176-2322).
- I.24. V. Vento, L. Cercenelli, C. Mascoli, E. Gallitto, S. Ancetti, G. Faggioli, A. Freyrie, E. Marcelli, M. Gargiulo, A. Stella. The Role of Simulation in Boosting the Learning Curve in EVAR Procedures. *J Surg Educ*. **2017** Sep 1. pii: S1931-7204(17)30419-1. doi: 10.1016/j.jsurg.2017.08.013. [Epub ahead of print].
- I.25. L. Cercenelli, B. Bortolani, G. Tiberi, C. Mascoli, I. Corazza, M. Gargiulo, E. Marcelli. Characterization of Vessel Deformations During EVAR: A Preliminary Retrospective Analysis to Improve Fidelity of Endovascular Simulators. *J Surg Educ*. **2017** Nov 6. pii: S1931-7204(17)30589-5. doi: 10.1016/j.jsurg.2017.10.013. [Epub ahead of print].
- I.26. A. Tarsitano, S. Battaglia, F. Ricotta, B. Bortolani, L. Cercenelli, E. Marcelli, R. Cipriani, C. Marchetti. "Accuracy of CAD/CAM mandibular reconstruction: A three-dimensional, fully virtual outcome evaluation method" *J Craniomaxillofac Surg*. **2018** Jul; 46(7):1121-1125. DOI: 10.1016/j.jcms.2018.05.010. (Casa editrice: Churchill Livingstone; Luogo di pubblicazione: Midlothian, Scotland; ISSN: 1010-5182) [IF 2017 1,960].
- I.27. L. Cercenelli, M. Fresina, B. Bortolani, G. Tiberi, G. Giannaccare, E.C. Campos, E. Marcelli. "Quantitative Approach for the Analysis of Fusional Convergence Using Eye-Tracking and SacLab Toolbox". *Journal of Healthcare Engineering* **2018** Jul 22;2018:3271269. doi: 10.1155/2018/3271269 (Casa editrice: Hindawi Ltd; Luogo di pubblicazione: London, England; ISSN:1176-2322). [IF2017 1,261].
- I.28. I. Corazza, L. Casadei, E. Bonafè, L. Cercenelli, E. Marcelli, R. Zannoli. "How to transform a fixed stroke alternating syringe ventricle into an adjustable elastance ventricle". *Rev Sci Instrum*. **2018** Jul; 89(7):074301. doi: 10.1063/1.5030100. (Casa editrice: Amer Inst Physics; Luogo di pubblicazione: Melville, USA; ISSN: 0034-6748) [IF 2017 1,428].
- I.29. L. Cercenelli, G. Tiberi, B. Bortolani, G. Giannaccare, M. Fresina, E. Campos, E. Marcelli. "Gaze Trajectory Index (GTI): A novel metric to quantify saccade trajectory deviation using eye tracking". *Comput Biol Med*. 2019 Apr;107:86-96. doi: 10.1016/j.combiomed.2019.02.003. Epub **2019** Feb 15. (Casa editrice: Pergamon-Elsevier Science Ltd; Luogo di pubblicazione: Oxford, England; ISSN: 0010-4825) [IF 2017 2,115].
- I.30. A. Tarsitano, F. Ricotta, L. Cercenelli, B. Bortolani, S. Battaglia, E. Lucchi, C. Marchetti, E. Marcelli. "Pretreatment tumor volume and tumor sphericity as prognostic factors in patients with oral cavity squamous cell carcinoma." *J Craniomaxillofac Surg*. **2019** Mar;47(3):510-515. doi: 10.1016/j.jcms.2018.12.019. (Casa editrice: Churchill Livingstone; Luogo di pubblicazione: Midlothian, Scotland; ISSN: 1010-5182) [IF 2017 1,960].
- I.31. S. Battaglia, F. Ricotta, V. Maiolo, G. Savastio, F. Contedini, R. Cipriani, B. Bortolani, L. Cercenelli, E. Marcelli, C. Marchetti, A. Tarsitano. "Computer-assisted surgery for reconstruction of complex mandibular defects using osteomyocutaneous microvascular fibular free flaps: Use of a skin paddle-outlining guide for soft-tissue

- reconstruction. A technical report." *J Craniomaxillofac Surg.* **2019** Feb;47(2):293-299. doi: 10.1016/j.jcms.2018.11.018. Epub 2018 Nov 28. (Casa editrice: Churchill Livingstone; Luogo di pubblicazione: Midlothian, Scotland; ISSN: 1010-5182) [IF 2017 1,960].
- I.32. E. Marcelli, L. Cercenelli. "An Implantable Sensorized Lead for Continuous Monitoring of Cardiac Apex Rotation." *Sensors (Basel).* **2018** Nov 30;18(12). pii: E4195. doi: 10.3390/s18124195. (Casa editrice: MDPI; Luogo di pubblicazione: Basel, Switzerland; ISSN: 1424-8220) [IF 2017 2,475].
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- IA.14. F. Palleri, I. Corazza, E. Marcelli, L. Cercenelli, A. Branzi, R. Zannoli. "Is "silent Ischemia" detectable by endocardial pacemaker leads?" Computers in Cardiology, Bologna 14-17 September 2008, Computers in Cardiology, p. 113, **2008**.
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- IA.17. E. Marcelli, L. Cercenelli, R. Fanti, P. Cavallari, A. Frigerio, S. Brenna, G. Colletti, F. Biglioli, G. Plicchi "A new method to quantify eyeblink restoration in facial paralysis" Proceedings of XXXVIII annual ESAO congress, Porto (Portugal) 9-12 October 2011, Int J Artif Organs **2011**; 34 (8): 712 (ISSN:0391-3988).
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- IA.19. M. Fresina, L. Cercenelli, C. Benedetti, E. C. Campos, B. Bortolani, B. Merante, P. Versura, E. Marcelli "Study of fusional convergence using eye tracking: preliminary results on subjects with normal binocular vision" Abstracts of ARVO 2015 Annual Meeting, Denver (USA) 3-7 maggio 2015, Invest Ophthalmol Vis Sci **2015**; 56(7):2917 (ISSN: 0146-0404).
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- IA.22. V. Vento, L. Cercenelli, C. Mascoli, E. Gallitto, G. Faggioli, A. Freyrie, E. Marcelli, M. Gargiulo, A. Stella. “The Role Of Evar Simulation In Boosting Learning Curve Of Trainee”. *ESVS XXX Annual Meeting*, Copenhagen, Denmark, 28-30 September **2016** – Accepted for Poster presentation.
- IA.23. R. Schiavina, A. Angiolini, M. Borghesi, L. Bianchi, F. Chessa, V. Vagnoni, F. Mineo Bianchi, U. Barbaresi, M. Marcelli, B. Bortolani, L. Cercenelli, E. Brunocilla. “3D-Modeling for vascular anatomy reconstruction before robotic partial nephrectomy”. *33rd Annual EAU Congress*, Copenhagen, Denmark, 16-20 March **2018** – Accepted for Video session presentation.
- IA.24. G. Badiali, F. Cutolo, L. Cercenelli, C. Marchetti, V. Ferrari. “The VOSTARS Project: Hybrid Video And Optical See Through Augmented Reality Surgical System For Maxillofacial Surgery”. *24th Congress of the European Association for Cranio Maxillo Facial Surgery*, 18-21 September 2018 - Munich – Germany. Accepted for oral presentation.
- IA.25. F. Ricotta, A. Tarsitano, B. Bortolani, L. Cercenelli, E. Marcelli, C. Marchetti. “Preoperative Mapping And Surgical Navigation In The Mid-Face Tumour: Our Experience On 17 Consecutive Patients”, *24th Congress of the European Association for Cranio Maxillo Facial Surgery*, 18-21 September 2018 - Munich – Germany. Accepted for oral presentation.
- IA.26. G. Badiali, F. Cutolo, L. Cercenelli, M. Carbone, R. D’Amato, C. Marchetti, V. Ferrari. “The VOSTARS Project: a new wearable hybrid Video and Optical See-Through Augmented Reality surgical System for Maxillofacial Surgery”. *International Journal of Maxillofacial Surgery – Volume 48 – Supplement 1-14 May 2019*. Abstracts ICOMS RIO 2019, 24° International Conference in Oral and Maxillofacial Surgery, Rio De Janeiro, Brazil, 20-24 May 2019.
- IA.27. A. Tarsitano, S. Battaglia, A. Ruggeri, S. Ratti, L. Manzoli, L. Cercenelli, E. Marcelli, C. Marchetti. “Allestimento di lembo peduncolato di pericranio per la ricostruzione del cavo orale: studio anatomico e validazione clinica del lembo di galea-pericranio dalla regione temporo-parietale”. *XXII SICMF2021 – XXII Congresso della Società Italiana di Chirurgia Maxillo-facciale (I° Virtual Congress)*. Giugno 2021.

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- N.1. E. Marcelli, P. Cacciari, D. Pedrini, L. Cercenelli, R. Giannoni, M. Musaico, G. Plicchi. “Flusso unidirezionale in sala operatoria: quadro normativo ed evidenze scientifiche” *Hospital & Public Health*, N 2/10, Aprile-Giugno **2010**, pp. 41-45.
- N.2. D. Pedrini, R. Giannoni, M. Musaico, L. Cercenelli, E. Marcelli “Sistemi a ventilazione meccanica controllata con recupero di calore attivo” *Premio Ambiente, Hospital & Public Health*, N 3/4, luglio-dicembre **2010**, pp. 6-11.
- N.3. G. Finzi, D. Pedrini, G. Plicchi, R. Giannoni, M. Musaico, L. Cercenelli, E. Marcelli “La nuova centrale di sterilizzazione dell’Azienda Ospedaliero Universitaria Policlinico S. Orsola Malpighi”, *Hospital & Public Health*, N 1/2, gennaio-giugno **2011**, pp. 12-19.

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- NC.1. P. Bagnoli, D. Gastaldi, N. Malagutti, E. Lui, L. Cercenelli, E. Marcelli, G. Plicchi, M.L. Costantino, R. Fumero “Computational model of cardiac torsion” *Atti del Congresso Nazionale di Bioingegneria 2008*, Pisa, 3-5 luglio **2008**, pp. 435-36 (ISBN: 978-88-555-2983-9).
- NC.2. E. Marcelli, L. Cercenelli, M. Musaico, G. Plicchi, P. Bagnoli, M.L. Costantino, R. Fumero “Cardiac rotation assessed by gyroscopic sensors: experimental animal trials” *Atti del Congresso Nazionale di Bioingegneria 2008*, Pisa, 3-5 luglio **2008**, pp. 481-82 (ISBN: 978-88-555-2983-9).
- NC.3. E. Marcelli, S. Spolzino, L. Cercenelli, P. Bagnoli, M.L. Costantino, N. Malagutti, R. Fumero, G. Plicchi “Assessment of the 3-dimensional left ventricular apex path with a magnetic tracking system” *Atti del Congresso Nazionale di Bioingegneria 2008*, Pisa, 3-5 luglio **2008**, pp. 483-84 (ISBN: 978-88-555-2983-9).
- NC.4. E. Marcelli, L. Cercenelli, G. Plicchi “Feasibility and safety of remote endocardial catheter navigation with a novel robotic system: early animal experience” *Atti del Congresso Nazionale di Bioingegneria 2008*, Pisa, 3-5 luglio **2008**, pp. 805-6 (ISBN: 978-88-555-2983-9).

- NC.5. E. Marcelli, L. Cercenelli, A. Grandi, M. Musaico, B. Bortolani, V. Maccagnan, G. Lenzotti, G. Plicchi “Nuovi percorsi organizzativo-tecnologici della distribuzione del farmaco” 36° Congresso Nazionale ANMDO, L’Ospedale Vol. 3/10 , pp. 18-25, **2010** (ISSN:0030-6231).
- NC.6. E. Marcelli, L. Cercenelli, G. Plicchi “A novel sensor to continuously monitor cardiac apex rotation” Atti del Congresso Nazionale di Bioingegneria 2010, Torino, 8-10 luglio **2010**, pp. 239-40 (ISBN: 978-88-555-3082-8).
- NC.7. E. Marcelli, L. Cercenelli, F. Di Monte, D. Caponi, F. Gaita, G. Plicchi “Safe cardiac mapping and catheter ablation using a novel remote catheter manipulator” Atti del Congresso Nazionale di Bioingegneria 2010, Torino, 8-10 luglio **2010**, pp. 271-2 (ISBN: 978-88-555-3082-8).
- NC.8. G. Plicchi, D. Pedrini, M.T. Malaguti, G. Finzi, L. Lama, M. Rizzoli, M. Musaico, L. Cercenelli, E. Marcelli “Il Nuovo Polo Chirurgico e dell’Emergenza dell’Azienda Ospedaliero-Universitaria Policlinico S. Orsola-Malpighi” 37° Congresso Nazionale ANMDO, L’Ospedale Vol. 2/11 , pp. 56-62, **2011** (ISSN: 0030-6231).
- NC.9. E. Marcelli, G. Plicchi, R. Fumero, M.L. Costantino, T. Villa, P. Bagnoli, M. Cominetti, L. Cercenelli “Evaluation of new coatings to improve titanium-ceramic adhesion in dental prostheses” Atti del Congresso Nazionale di Bioingegneria 2012, Roma, 26-29 giugno **2012** (ISBN:978 88 555 3182).
- NC.10. L. Cercenelli, E. Palermo, E. Marcelli “Quantification of eyelid closure and facial movements during electrically elicited eye-blinking” Atti del Congresso Nazionale di Bioingegneria 2012, Roma, 26-29 giugno **2012** (ISBN:978 88 555 3182).
- NC.11. L. Cercenelli, E. Marcelli “A mechanical simulator of cardio-respiratory movements for Impedance Minute Ventilation assessment” Atti del Congresso Nazionale di Bioingegneria 2014, Pavia, 25-27 giugno **2014** (ISBN: 9788855532754).
- NC.12. G. Tiberi, L. Cercenelli, E. Marcelli “Developing smartphone-based indoor localization systems for the disabled: a method to estimate the accelerometers' offset” Atti del Congresso Nazionale di Bioingegneria 2014, Pavia, 25-27 giugno **2014** (ISBN: 9788855532754).
- NC.13. L. Cercenelli, B. Bortolani, E. Marcelli “CardioMon: an implantable catheter with a 3D gyro for continuous monitoring of cardiac rotation” Atti del Congresso Nazionale di Bioingegneria 2016, Napoli, 20-22 giugno **2016** (ISBN: 978-88-941906-0-1).
- NC.14. L. Bianchi, E. Molinaroli, A. Angiolini, L. Cercenelli, B. Bortolani, CV Pultrone, F. Chessa, M. Droghetti, C. Gaudiano, R. Golfieri, E. Marcelli, R. Schiavina. The use of 3D virtual and printed renal model to improve percutaneous puncture during nephrolithotripsy for kidney calculosis “Italian Digital Biomanufacturing Network 3rd National Congress”. *Minerva Orthopedics*, Vol.72.Suppl.I, No.3, June 2021.
- NC.15. L. Bianchi, L. Cercenelli, E. Molinaroli, B. Bortolani, A. Angiolini, F. Chessa, P. Piazza, M. Droghetti, C. Gaudiano, R. Golfieri, E. Marcelli, R. Schiavina. The use of kidney reconstructions and 3D prints models to plan surgical approach during partial nephrectomy: a case-control study. “Italian Digital Biomanufacturing Network 3rd National Congress”. *Minerva Orthopedics*, Vol.72.Suppl.I, No.3, June 2021.
- NC.16. L. Cercenelli, E. Marcelli, B. Bortolani, J. Lauterio, S. Battaglia, C. Marchetti, A. Tarsitano, G. Badiali. Design and 3D printing of a human leg phantom for simulating an AR-guided skin paddle resection in mandibular reconstruction. “Italian Digital Biomanufacturing Network 3rd National Congress”. *Minerva Orthopedics*, Vol.72.Suppl.I, No.3, June 2021.
- NC.17. L. Cercenelli, E. Marcelli, B. Bortolani, J. Lauterio, S. Battaglia, C. Marchetti, A. Tarsitano, G. Badiali. Design and 3D printing of a human leg phantom for simulating an AR-guided skin paddle resection in mandibular reconstruction. “Italian Digital Biomanufacturing Network 3rd National Congress”. *Minerva Orthopedics*, Vol.72.Suppl.I, No.3, June 2021.

Abstracts of national conferences (NA)

- NA.1. E.M. Alessandrini, L. Lorenzini, B. Bortolani, L. Cercenelli, E. Marcelli, S. Faenza “Studio osservazionale monocentrico di valutazione del consumo di ossigeno in corso di clampaggio dell’ilo epatico durante chirurgia resettiva epatica: dati preliminari” 69° Congresso Nazionale SIAARTI, Bologna, 14-17 Ottobre 2015, Abstract Book, p. 94, **2015** (ISBN: 9788894052916).
- NA.2. V. Vento, L. Cercenelli, C. Mascoli, E. Gallitto, G. Faggioli, A. Freyrie, E. Marcelli, M. Gargiulo, A. Stella. “La simulazione EVAR e la formazione del chirurgo vascolare”. XV Congresso Nazionale della Società Italiana di Chirurgia Vascolare ed Endovascolare, Roma, 23-25 ottobre **2016** – Accettato per presentazione poster.
- NA.3. L. Cercenelli, G. Badiali, B. Bortolani, A. Tarsitano, C. Marchetti, E. Marcelli. “Pianificazione CAD/CAM per interventi di genioplastica” 2° Congresso IDBN “3D Printing and Biomechanics”, Pavia, 5-7 settembre 2018 – Accettato per presentazione Biomodelli.

- NA.4. A. Tarsitano, L. Cercenelli, B. Bortolani, G. Badiali, S. Battaglia, E. Marcelli, C. Marchetti. “Guide e placche CAD/CAM per ricostruzione cranica“. 2° Congresso IDBN “3D Printing and Biomechanics”, Pavia, 5-7 settembre 2018 – Accettato per presentazione Biomodelli.
- NA.5. O. Lunari, L. Cercenelli, B. Bortolani, L. Garrisi, M. Lorenzetti, E. Marcelli, C. Marchetti, G. Badiali. “Una nuova metodica 3D per l’analisi delle variazioni morfologiche delle vie aeree superiori a seguito di chirurgia ortognatica.” XXI Congresso Nazionale SICMF, Lecce, 12-15 giugno 2019.
- NA.6. F. Ricotta A. Tarsitano, A. Pizzigallo, G. Badiali, L. Cercenelli, E. Marcelli, C. Marchetti. “La navigazione dei margini di resezione chirurgica nei tumori coinvolgenti il mascellare: l’esperienza di 4 anni di attività.” XXI Congresso Nazionale SICMF, Lecce, 12-15 giugno 2019.
- NA.7. L. Bianchi, A. Angiolini, U. Barbaresi, L. Cercenelli, B. Bortolani, R. Schiavina, C.V. Pultrone, M. Borghesi, F. Chessa, M. Droghetti, E. Sessagesimi, C. Gaudiano, E. Brunocilla, E. Marcelli. “Ricostruzione di modello renale e stampa 3d per migliorare la puntura percutanea durante intervento di nefrolitotrixxia percutanea per calcolosi renale.” III Congresso IDBN “3D Printing and Bioprinting in Medicine and Surgery”, Pisa, 28-30 ottobre 2019 – Sessione Biomodelli.
- NA.8. L. Bianchi, U. Barbaresi, L. Cercenelli, B. Bortolani, E. Marcelli, M. Cevenini, M. Borghesi, S. D’Agostino, A. Angiolini, F. Chessa, P. Piazza, M. Droghetti, C. Gaudiano, E. Sessagesimi, R. Schiavina, E. Brunocilla. “Ricostruzioni e stampe 3D di modelli renali per pianificazione chirurgica di interventi di nefrectomia parziale: studio caso-controllo.” III Congresso IDBN “3D Printing and Bioprinting in Medicine and Surgery”, Pisa, 28-30 ottobre 2019 – Sessione Biomodelli.
- NA.9. L. Cercenelli, E. Marcelli, B. Bortolani, J. Lauterio, S. Battaglia, C. Marchetti, A. Tarsitano, G. Badiali. “Progettazione e stampa 3D di un simulatore di gamba per un sistema di guida AR in interventi di ricostruzione mandibolare.” III Congresso IDBN “3D Printing and Bioprinting in Medicine and Surgery”, Pisa, 28-30 ottobre 2019 – Sessione Biomodelli
- NA.10. R. Schiavina, L. Bianchi, B. Bortolani, L. Cercenelli, E. Marcelli, A. Angiolini, U. Barbaresi, M. Borghesi, F. Chessa, M. Droghetti, C. Gaudiano, E. Brunocilla. “Biomodelli 3D per pianificare il clampaggio arterioso selettivo in corso di nefrectomia parziale per neoplasia renale: studio preliminare”. III Congresso IDBN “3D Printing and Bioprinting in Medicine and Surgery”, Pisa, 28-30 ottobre 2019.
- NA.11. L. Cercenelli, I. Benvenuto Greco, B. Bortolani, E. Marcelli. “Computational modeling of IntraValvular Impedance sensing for heart valve prostheses”. ESB-ITA Meeting 2019, 30 September – 1 October 2019, Bologna, Italy.
- NA.12. E. Marcelli, N. Emiliani, B. Bortolani, L. Cercenelli, G. Molinari, L. Presutti. “Progettazione e sviluppo con tecniche di stampa 3D di un simulatore multimateriale paziente-specifico per la chirurgia endoscopica dei seni paranasali”. 108° Congresso Nazionale SIO. 25-28 maggio 2022, Roma, Italia.

9. Awards

- 2007: Recognition by ADI (Association of PhD students and doctors of research in Italy) for finalist project ("*CathROB: Robot for remote navigation of cardiovascular catheters*") in the "Dot2B Expo" event, in the context of Research to Business 2007 (Bologna).
- 2010: 1st Place prize “ANMDO Environmental Sustainability”, at the “7th National Conference on ANMDO Operating Rooms”, Rome 19 to 22 October 2010, for the paper title “Systems controlled mechanical ventilation with heat recovery active”. Pedrini, R. Giannoni, M. Musaico, L. Cercenelli, E. Marcelli. Award Environment, Public Health & Hospital, N 3/4, July-December 2010, pp . 6-11.D.
- 2015: 2st Place prize “ESAO Poster Award” at the “XLII Annual ESAO Congress”, 2-5 September 2015, Leuven, Belgium, for the poster titled “Intravalvular impedance sensor for next-generation smart prosthetic heart valves”. E. Marcelli, L. Cercenelli.

- 2019: "Eye Catcher Company Project" award as part of the ReActor program "School of entrepreneurship and innovation for scientists and researchers", organized by the Golinelli Foundation - Bologna.
- 2023: "Best FULL Paper" Award by Springer (XR Salento 2023 international conference on eXtended Reality, Lecce 6-9 Settembre 2023). L. Cercenelli, N. Emiliani, C. Gulotta, M. Bevini, G. Badiali, E. Marcelli. "Augmented Reality in orthognathic surgery: a multi-modality tracking approach to assess the temporomandibular joint motion".
- 2023:"Best Graphical Abstract" Award by Springer (XR Salento 2023 international conference on eXtended Reality, Lecce 6-9 Settembre 2023). L. Cercenelli, N. Emiliani, C. Gulotta, M. Bevini, G. Badiali, E. Marcelli. "Augmented Reality in orthognathic surgery: a multi-modality tracking approach to assess the temporomandibular joint motion".

10. Patents

Laura Cercenelli is co-inventor of 2 European and 9 Italian patents, and of 5 USA and 3 European patent applications.

Issued patents:

In EUROPE

NUMBER	TITLE	INVENTORS	ISSUE DATE
EP2198916B1	Implantable telemetric device for heart monitoring	G. Plicchi, E. Marcelli, <u>L. Cercenelli</u>	16/09/15
EP2218396B1	Robotic manipulator for the remote maneuvering of catheters	G. Plicchi, E. Marcelli, <u>L. Cercenelli</u> , M. Panfili	10/12/14

In ITALY

NUMBER	TITLE	INVENTORS	ISSUE DATE
1404317	Apparato per l'uso di un sensore di misura della rotazione e/o delle vibrazioni meccaniche del cuore nei dispositivi telemetrici impiantabili per la rilevazione di parametri elettromeccanici cardiaci a scopi diagnostici e/o terapeutici e/o di monitoraggio	G. Plicchi, E. Marcelli, <u>L. Cercenelli</u> , Gianfranchi, Bortolami, F.	22/11/2013
1393012	Dispositivo telemetrico impiantabile, per il monitoraggio del cuore	G. Plicchi, E. Marcelli, <u>L. Cercenelli</u>	11/04/12
0000271494 (modello di utilità)	Interfaccia per l'azionamento da posizione remota, di un manipolatore robotico per la manovra di cateteri steerable nel sistema cardiovascolare umano	G. Plicchi, E. Marcelli, <u>L. Cercenelli</u> , M. Panfili, D. Golinelli	27/09/11

0000271360 (modello di utilità)	Dispositivo telescopico di guida, con adattatori, da montare su cateteri per agevolare l'inserimento nel sistema cardiovascolare umano con procedura manuale o tramite manipolatore robotico	G. Plicchi, E. Marcelli, <u>L. Cercenelli</u> , M. Panfili, D. Golinelli	23/09/11
0000270197 (modello di utilità)	Dispositivo orientabile, per il supporto registrabile ed amovibile di un gruppo introduttore e adattatore perfezionato, che agevola l'inserimento temporaneo di cateteri flessibili nel sistema cardiovascolare umano	G. Plicchi, E. Marcelli, <u>L. Cercenelli</u> , M. Panfili	01/09/11
0000270196 (modello di utilità)	Manipolatore robotico per la manovra a distanza di cateteri steerable nel sistema cardiovascolare umano	G. Plicchi, E. Marcelli, <u>L. Cercenelli</u> , M. Panfili	01/09/11
1363314	Apparato con manipolatore robotico per la manovra a distanza nel sistema cardiovascolare umano di cateteri steerable (caso b)	G. Plicchi, E. Marcelli, <u>L. Cercenelli</u>	03/07/09
1363313	Dispositivo adattatore per agevolare l'inserimento temporaneo nel sistema cardiovascolare umano di cateteri flessibili per uso diagnostico e/o terapeutico	G. Plicchi, E. Marcelli, <u>L. Cercenelli</u>	03/07/09
1362862	Dispositivo cardiaco impiantabile, con sensore di rotazione del cuore	G. Plicchi, E. Marcelli, <u>L. Cercenelli</u> , F. Bortolami	03/07/09

Patent Applications:

In USA

NUMBER	TITLE	INVENTORS	FILING DATE
12/892,082	Interface for actuating a robotic manipulator from a remote position for manoeuvring steerable catheters in the human cardiovascular system	G. Plicchi, E. Marcelli, <u>L. Cercenelli</u> , M. Panfili, D. Golinelli	28/09/10
12/892,092	Telescopic guide device for catheters to facilitate their insertion into the human cardiovascular system	G. Plicchi, E. Marcelli, <u>L. Cercenelli</u> , M. Panfili, D. Golinelli	28/09/10
12/702,585	Orientable device for the support of an adaptor and introducer of catheters in the human cardiovascular system	G. Plicchi, E. Marcelli, <u>L. Cercenelli</u> , M. Panfili	09/02/10
12/702,569	Robotic manipulator for the remote maneuvering of catheters	G. Plicchi, E. Marcelli, <u>L. Cercenelli</u> , M. Panfili	09/02/10
12/632,973	Implantable telemetric device for heart monitoring	G. Plicchi, E. Marcelli, <u>L. Cercenelli</u> ,	08/12/09

In EUROPE

NUMBER	TITLE	INVENTORS	FILING DATE
10181278.2	Interface for actuating a robotic manipulator from a remote position for manoeuvring steerable catheters in the human cardiovascular system	G. Plicchi, E. Marcelli, <u>L. Cercenelli</u> , M. Panfili, D. Golinelli	28/09/10
10181282.4	Telescopic guide device for catheters to facilitate their insertion into the human cardiovascular system	G. Plicchi, E. Marcelli, <u>L. Cercenelli</u> , M. Panfili, D. Golinelli	28/09/10
10153029.3	Orientable device for the support of an adaptor and introducer of catheters in the human cardiovascular system	G. Plicchi, E. Marcelli, <u>L. Cercenelli</u> , M. Panfili	09/02/10

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Bologna, October 2023

Luca Cerretti