

Emanuele Gasparotti

Current Position

- 2016 – present  **BioCardioLab, Fondazione Toscana Gabriele Monasterio, Italy** - Research engineer
- Novel cardiovascular implants simulation and testing
 - Numerical computation for structural, fluid dynamics and fluid-structure interaction simulations in the cardiovascular field
 - Additive manufacturing for biomedical applications
 - Experimental setup design of in-vitro tests of endovascular devices
 - Experimental setup design for soft tissues opto-mechanical characterization
 - Biological/cardiovascular tissue mechanical modeling and characterization

Current Projects

- 2023 –  Contribution to the **PLAcE - An integrated pipeline for planning of Percutaneous Left Atrial Appendage Occlusion based on 3D printed and in-silico models** project by fulfilling the following tasks:
- Development of mock circulatory loop for evaluation of Left atrial appendage closure procedure
 - Development of PIV system for the characterization Left atrial appendage fluid dynamics
 - 3D printing manufacturing of simulator for the training of Left atrial appendage closure procedure
-  Consultant for **Edwards Lifescience company** for the design and development of cardiovascular simulator for the training of the mitral valve in valve replacement procedure
- 2022 –  Consultant for **Sintac (GPI) company** for finite element simulations of orthopaedic and maxillofacial prostheses
-  Contribution to the **Repair - H2020 - Restoring cardiac mechanical function by polymeric artificial muscular tissue** project by fulfilling the following tasks:
Development of fluid dynamic setup for evaluation of cardiovascular contractile LED based patches cardiovascular tissue
- 2020 –  Contribution to the **MEDITATE - H2020 - Medical Digital Twin for Aneurysm Prevention and Treatment** project by fulfilling the following tasks:
- Development of mock circulatory loop for evaluation of cardiovascular vessels
 - Development of PIV system for the characterization vessels fluid dynamics
 - 3D printing manufacturing of heart structures models
 - Development of mechanical / microstructural setup for evaluation of cardiovascular tissue

Current Position (continued)

Acheived Projects

- 2021 – 2024 ■ Winner of the competitive selection for the **My Breathing Heart - (Development of a smartphone application for remote monitoring of breathing kinematics during a pandemic crisis)** project as a Research engineer
- Cinematic tracking of the human chest during breathing
 - Development of human breathing in-vitro simulator
- 2019 – 2023 ■ Winner of the competitive selection for the **3D VIRTUAL BABY HEART - (to design an engineering workflow based on 3D Printing techniques and Virtual and Mixed Reality environment for supporting physical pre-operative planning)** project as a Research engineer
- Cad model designing of heart structures
 - 3D printing manufacturing of heart structures models for the pre-operative planning
- 2019 – 2020 ■ Contribution to the **4R Tender - (Reviews on Non-animal Methods in Use for Biomedical Research)** project
- Investigation of non-animal methods for the research in the cardiovascular field
 - Evaluation of engineering techniques for the replacement of animal experimentation
- 2017 – 2020 ■ Contribution to the **DIVINE - (High-speed 3D-imaging of blood vessels based on optical signal processing)** project by fulfilling the following tasks:
- Development of mechanical / microstructural setup for evaluation of cardiovascular tissues
- 2017 – 2019 ■ Contribution to the **VIVIR - (Virtual and Augmented Reality Support for Transcatheter Valve Implantation by using Cardiovascular MRI)** project by fulfilling the following tasks:
- 3D printing manufacturing of heart structures models
 - Development of fluid dynamic setup for evaluation of cardiovascular devices
- 2016 – 2019 ■ Winner of the competitive selection for the **Valvetech - (Realization of a polymer aortic valve of new conception and implantable through robotic platform with minimally invasive surgery techniques)** project as a Research engineer
- Development of an hydraulic piston pulsatile pump able to reproduce the physiological cardiac flows
 - Hydrodynamic and mechanical testing of developed heart valve materials and aortic root tissues
 - Designing of tensile machine was then updated with laser system to fully characterize the mechanical properties of soft tissues

Work Experiences

- Jul 2015 – Dec 2015 ■ **Leonardo s.p.a, Italy** - Intern at Defence System div.
- Numerical simulations of composite laminate
 - Composite designing of the Hitfist® tank turret
 - Dynamical ballistic analysis of the turret panels to evaluate the performance of the tank protection

Education

- 2018 – 2022 **Ph.D. Biomedical Engineering, University of Pisa, Italy.**
Thesis title: *Modelling and numerical simulations of the Cardioband procedure for mitral valve regurgitation repair.*
Supervisors: Prof. Luigi Landini, Prof. Giovanni Vozzi, Prof. Simona Celi (s.celi@ftgm.it)
- 2016 **Government exam and license for Mechanical Engineer profession.**
- 2012 – 2015 **M.Sc. Mechanical engineering, University of Pisa, Italy.**
Thesis title: *Feasibility study of a composite hull for tank turret.*
Supervisors: Prof. Marco Beghini, Eng. Paolo Arrighi
- 2008 – 2012 **B.Sc. Mechanical engineering, University of Pisa, Italy.**
Thesis title: *Study of the thermal compensation system for the absorber tube of a solar concentration implant.*
Supervisors: Prof. Roberto Gabbriellini

Miscellaneous Experience

Awards

- 2019 **First Prize "Best Oral presentation",** "Biaxial and optomechanical characterization of soft tissues: a novel setup and experimental tests" ESB-ITA2019, October 30 – November 1, 2019, Bologna, Italy, co-author of the work.
- First Prize "Best poster presentation",** "In-silico assessment of thrombosis risk: a CFD study of left atrial and left atrial appendage" ESB-ITA2019, October 30 – November 1, 2019, Bologna, Italy, co-author of the work.
- Finalist poster Award,** "A novel FSI-RBF mesh morphing environment to design a new polymeric aortic valve", International CAE Conference, October 28 – 29, 2019, Vicenza, Italy, first presenter.
- 2018 **Winner of Best Poster Award,** "Digital twin in healthcare: development of an integrated imaging and finite element model of Cardioband® procedure for the treatment of mitral regurgitation", International CAE Conference, October 8 – 9, 2018, Vicenza, Italy, first presenter.

Miscellaneous Experience (continued)

Additional Research Activities

- 2018- **■ Supervisor for 17 Master theses in Biomedical Engineering** at University of Pisa.
- Effect of aortic morphology for ECMO investigation: a combined SSM and CFD study (2024)
 - Design and fabrication of 3D printed deformable model of patient-specific left atrium for PIV investigation (2023)
 - Design and set-up of a 3d printed left Heart flow simulator for the Simulation of the mitralclip procedure (2023)
 - Mechanical properties of aortic tissue in vivo through the analysis of CT-ECG gated images (2023)
 - Development and implementation of a combined CFD and mesh morphing technique for the thoracic aorta (2022)
 - Simulation using finite volume techniques of fluid dynamics in patients undergoing extracorporeal circulation (2022)
 - Computational Analysis of the parametric Left Atrial Appendage to study the risk of thrombus formation (2022)
 - Caratterizzazione meccanica e funzionale dei materiali della stampante 3D Stratasys J750 Digital Anatomy per il settore vascolare (2021)
 - Effects of the Cardioband procedure on the mitral valve (2021)
 - Finite element numerical simulation of Cardioband® procedure for the treatment of mitral regurgitation (2021)
 - Numerical simulation of ECMO procedure (2020)
 - Development of a fast high fidelity FSI workflow to simulate polymeric aortic valves: a RBF mesh morphing study (2019)
 - Development of an in silico and an in vitro workflow for the planning of cerebral aneurysms intervention: an integrated approach with echo-PIV and CFD (2019)
 - Design and development of an experimental setup for the optomechanical characterization of vascular tissue (2019)
 - Development of an experimental fluid dynamic setup for the evaluation of valve prosthesis (2018)
 - Finite element simulation of left atrial appendage occlusion procedure (2018)
 - Mock Cardiac Pump Compatible With Magnetic Resonance Imaging: Design, Simulation And Fabrication (2018)
- 2020 - **■ Supervisor for Master thesis in Aerospace Engineering** at University of Pisa.
- Mechanical characterisation of anisotropic materials Anisotropic hyperelastic materials by means of DIC Applied to biaxial tensile and bulge tests Test (2022)
 - Emodinamica dell'aorta toracica: effetto delle condizioni di inlet su esperimenti e simulazioni (2020)
 - Circulatory mock loop for thoracic aorta hemodynamics analysis: stochastic sensitivity to inlet conditions and comparison with numerical simulations results (2020)
- 2019-2021 **■ Lecturer** for the course "Principles for Diagnostic Methods" at faculty of Biomedical Engineering, University of Pisa.
- 2021 **■ Lecturer** for the LABS seminar held in Politecnico di Milano with the presentation "A computational fluid dynamics workflow for the assessment of thromboembolic risk in non-valvular atrial fibrillation patients".

Miscellaneous Experience (continued)

2018-

International Peer review journal activities.

- Editorial board of Frontiers in Medical Technology
- American Society of Mechanical Engineers
- Computer Methods in Applied Mechanics and Engineering
- Journal of Biomechanics
- International Journal of Polymeric Materials and Polymeric Biomaterials
- Mathematical Biosciences and Engineering
- Journal of Cardiothoracic Surgery

Congress organization

- Member of the organizing committee for the **IV congress of the Italian Digital Biomanufacturing Network (IDBN2024)**, held in Florence in September 2024
- Member of the organizing committee for the seminar cycle and open day entitled **"My Breathing Heart: quanto è in forma il tuo respiro?"**, held in Pisa in February 2024
- Member of the organizing committee of the **"3D Virtual Baby Heart Congress"** held in Massa on the 17-18 November 2023
- Member of the organizing committee for the **Winter School 2023 "Big Data analytics from engineering to clinical"**
- Member of the organizing committee for the **XI Annual Meeting of the Italian Chapter of European Society of Biomechanics (ESB-ITA2022)**, held in Massa in October 2022

Skills

Technical skills

CAE	■ Ansys APDL, Ansys Mechanical, Ansys Fluent, Ansys LS-DYNA, Abaqus
Meshing	■ ANSA, ICEM, Meshmixer, Ansys Fluent WaterTight
CAD	■ Solidworks, SpaceClaim, ANSYS Modeling, Autocad, FreeCad, Fusion360, Inventor
3D printing	■ 3Ntr SSI2023, Sinterit Advanced Studio, Formlabs Preform, Simplify3D
Programming	■ Matlab, Mathcad, Python
Other	■ Office, Gsuite, LaTeX

Personal skills

- High level in communication skills
- Sociable and proactive
- High level in problem solving skills

Languages

- Italian, Native
- English, Professional

Research Publications

Journal Articles

- 1 Danielli, F., Berti, F., Fanni, B. M., **Gasparotti, E.**, Celi, S., Pennati, G. & Petrini, L. (2024). Left atrial appendage occlusion: On the need of a numerical model to simulate the implant procedure. *International Journal for Numerical Methods in Biomedical Engineering*, e3814.

- 2 Garzia, S., Capellini, K., **Gasparotti, E.**, Pizzuto, D., Spinelli, G., Berti, S., Positano, V. & Celi, S. (2024). Three-dimensional multi-modality registration for orthopaedics and cardiovascular settings: State-of-the-art and clinical applications. *Sensors*, 24(4), 1072.
- 3 Rizza, A., Castiglione, V., Capellini, K., Palmieri, C., **Gasparotti, E.**, Berti, S. & Celi, S. (2024). Case report: Role of numerical simulations in the management of acute aortic syndromes. *Frontiers in Cardiovascular Medicine*, 11, 1309840.
- 4 Vignali, E., **Gasparotti, E.**, Miglior, L., Gervasi, V., Simone, L., Haxhiademi, D., Frediani, L., Borelli, G., Berti, S. & Celi, S. (2024). A new smartphone-based method for remote health monitoring: Assessment of respiratory kinematics. *Electronics*, 13(6), 1132.
- 5 Antonuccio, M. N., **Gasparotti, E.**, Bardi, F., Monteleone, A., This, A., Rouet, L., Avril, S. & Celi, S. (2023). Fabrication of deformable patient-specific aaa models by material casting techniques. *Frontiers in Cardiovascular Medicine*, 10.
- 6 Calò, K., Capellini, K., De Nisco, G., Mazzi, V., **Gasparotti, E.**, Gallo, D., Celi, S. & Morbiducci, U. (2023b). Impact of wall displacements on the large-scale flow coherence in ascending aorta. *Journal of Biomechanics*, 154, 111620.
- 7 Celi, S., **Gasparotti, E.**, Capellini, K., Bardi, F., Scapolini, M. A., Cavaliere, C., Cademartiri, F. & Vignali, E. (2023). An image-based approach for the estimation of arterial local stiffness in vivo. *Frontiers in Bioengineering and Biotechnology*, 11, 1096196.
- 8 Fanni, B. M., **Gasparotti, E.**, Vignali, E., Capelli, C., Positano, V. & Celi, S. (2023). An integrated in-vitro and in-silico workflow to study the pulmonary bifurcation hemodynamics. *Computers & Fluids*, 260, 105912.
- 9 **Gasparotti, E.**, Fanni, B. M., Del Pia, E., Capellini, K., Danielli, F., Berti, F., Clemente, A., Berti, S., Pennnati, G., Petrini, L. Et al. (2023). Computational fluid dynamic simulation to evaluate the device-related effects after left atrial appendage occlusion, 205–212.
- 10 **Gasparotti, E.**, Vignali, E., Quartieri, S., Lazzeri, R. & Celi, S. (2023). Numerical investigation on circular and elliptical bulge tests for inverse soft tissue characterization. *Biomechanics and Modeling in Mechanobiology*, 22(5), 1697–1707.
- 11 Mariotti, A., Vignali, E., **Gasparotti, E.**, Morello, M., Singh, J., Salvetti, M. V. & Celi, S. (2023). In vitro analysis of hemodynamics in the ascending thoracic aorta: Sensitivity to the experimental setup. *Applied Sciences*, 13(8), 5095.
- 12 Pizzuto, A., Raimondi, F., Celi, S., Calabri, G. B., Spaziani, G., **Gasparotti, E.**, Capellini, K., Clemente, A., Amoretti, F., Favilli, S. Et al. (2023). Transcatheter treatment of native idiopathic multiloculated aortic aneurysm guided by 3d printing technology. *Case Reports*, 8, 101662.
- 13 Scalera, S., Clemente, A., Pizzuto, A., **Gasparotti, E.**, Fanni, B. M., Vignali, E., Capellini, K., Celi, S. & Santoro, G. (2023). 3d printed model-guided neonatal transcatheter closure of left main coronary artery-to-right ventricle fistula. *Case Reports*, 16, 101869.
- 14 Vignali, E., Gasparotti, E., Haxhiademi, D. & Celi, S. (2023). Fluid dynamic model for extracorporeal membrane oxygenation support and perfusion in cardiogenic shock. *Physics of Fluids*, 35(11).
- 15 Bardi, F., **Gasparotti, E.**, Vignali, E., Avril, S. & Celi, S. (2022). A hybrid mock circulatory loop for fluid dynamic characterization of 3d anatomical phantoms. *IEEE Transactions on Biomedical Engineering*, 70(5), 1651–1661.
- 16 **Gasparotti, E.**, Vignali, E., Mariani, M., Berti, S. & Celi, S. (2022c). Image-based modelling and numerical simulations of the cardioband® procedure for mitral valve regurgitation repair. *Computer Methods in Applied Mechanics and Engineering*, 394, 114941.

- 17 Mariotti, A., Vignali, E., Gasparotti, E., Marchese, P., Morello, M., Salvetti, M., Celi, S. Et al. (2022). Hemodynamics in healthy and pathological thoracic aorta: Integration of in-vivo data in cfd simulations and in in-vitro experiments, *288949*, 1–12.
- 18 Mariotti, A., **Gasparotti, E.**, Vignali, E., Marchese, P., Celi, S. & Salvetti, M. V. (2022b). Integrating in-vivo data in cfd simulations and in in-vitro experiments of the hemodynamic in healthy and pathologic thoracic aorta, 208–219.
- 19 Santoro, G., Rizza, A., Pizzuto, A., Berti, S., Cuman, M., **Gasparotti, E.**, Capellini, K., Cantinotti, M., Clemente, A. & Celi, S. (2022). Transcatheter treatment of ascending aorta pseudoaneurysm guided by 3d-model technology. *Case Reports*, 4(6), 343–347.
- 20 Vignali, E., **Gasparotti, E.**, Mariotti, A., Haxhiademi, D., Ait-Ali, L. & Celi, S. (2022). High-versatility left ventricle pump and aortic mock circulatory loop development for patient-specific hemodynamic in vitro analysis. *ASAIO Journal*, 68(10), 1272–1281.
- 21 Capellini, K., **Gasparotti, E.**, Cella, U., Costa, E., Fanni, B. M., Groth, C., Porziani, S., Biancolini, M. E. & Celi, S. (2021). A novel formulation for the study of the ascending aortic fluid dynamics with in vivo data. *Medical Engineering Physics*, 91, 68–78.
- 22 Cavallo, A., **Gasparotti, E.**, Losi, P., Foffa, F., T. Al Kayal, T., Vignali, E., Celi, S. & Soldani, G. (2021). Fabrication and in-vitro characterization of a polymeric aortic valve for minimally invasive valve replacement. *Journal of the Mechanical Behavior of Biomedical Materials*, 115, 104294.
- 23 Celi, S., **Gasparotti, E.**, Capellini, K., Vignali, E., Fanni, B. M., Ali, L. A., Cantinotti, M., Murzi, M., Berti, S., Santoro, G. Et al. (2021). 3d printing in modern cardiology. *Current Pharmaceutical Design*, 27(16), 1918–1930.
- 24 Celi, S., Vignali, E., Capellini, K. & **Gasparotti, E.** (2021). On the role and effects of uncertainties in cardiovascular in silico analyses. *Frontiers in Medical Technology*, 3, 748908.
- 25 Cuman, M., Santoro, G., Capellini, K., **Gasparotti, E.**, Pizzuto, A., Berti, S., Celi, S. & Clemente, A. (2021). 3d model-guided trans-catheter closure of a complex aortic paravalvular leak. *Journal of Cardiovascular Medicine*, 22(8), 660–663.
- 26 di Bartolo, F., Vignali, E., **Gasparotti, E.**, Malacarne, A., Landini, L. & Celi, S. (2021). Numerical simulations of light scattering in soft anisotropic fibrous structures and validation of a novel optical setup from fibrous media characterization. *Electronics*, 10(5).
- 27 Geronzi, L., **Gasparotti, E.**, Capellini, K., Cella, U., Groth, C., Porziani, S., Chiappa, A., Celi, S. & Biancolini, M. E. (2021). High fidelity fluid-structure interaction by radial basis functions mesh adaption of moving walls: A workflow applied to an aortic valve. *Journal of Computational Science*, 51, 101327.
- 28 Pizzuto, A., Santoro, G., Baldi, C., Celi, S., Cuman, M., Berti, S., **Gasparotti, E.**, Capellini, K., Clemente, A. Et al. (2021). 3d model-guided transcatheter closure of left ventricular pseudoaneurysm: A case series. *Journal of Cardiovascular Medicine*, 22(12), e1–e7.
- 29 Vignali, E., **Gasparotti, E.**, Capellini, K., Fanni, B. M., Landini, L., Positano, V. & Celi, S. (2021). Modelling biomechanical interaction between soft tissue and soft robotic instruments: Importance of constitutive anisotropic hyperelastic formulations. *The International Journal of Robotics Research*, 40(1), 224–235.
- 30 Vignali, E., **Gasparotti, E.**, Celi, S. & Avril, S. (2021). Fully-coupled fsi computational analyses in the ascending thoracic aorta using patient-specific conditions and anisotropic material properties. *Frontiers in Physiology*, 12, 732561.
- 31 Vignali, E., **Gasparotti, E.**, Landini, L. & Celi, S. (2021). Development and realization of an experimental bench test for synchronized small angle light scattering and biaxial traction analysis of tissues. *Electronics*, 10(4).

- 32 Capellini, K., Tripicchio, P., Vignali, E., **Gasparotti, E.**, Ali, L. A., Cantinotti, M., Federici, D., Santoro, G., Alfonzetti, F., Evangelista, C. Et al. (2020). 3d printing and 3d virtual models for surgical and percutaneous planning of congenital heart diseases., 281–287.
- 33 Geronzi, L., **Gasparotti, E.**, Capellini, K., Cella, U., Groth, C., Porziani, S., Chiappa, A., Celi, S. & Biancolini, M. E. (2020). Advanced radial basis functions mesh morphing for high fidelity fluid-structure interaction with known movement of the walls: Simulation of an aortic valve, 280–293.
- 34 Mariotti, A., Vignali, E., **Gasparotti, E.**, Capellini, K., Celi, S. & Salvetti, M. V. (2020). Comparison between numerical and mri data of ascending aorta hemodynamics in a circulatory mock loop, 898–907.
- 35 Vignali, E., di Bartolo, F., **Gasparotti, E.**, Malacarne, A., Concistré, G., Chiaramonti, F., Murzi, M., Positano, V., Landini, L. & Celi, S. (2020). Correlation between micro and macrostructural biaxial behavior of ascending thoracic aneurysm: A novel experimental technique. *Medical Engineering Physics*, 86, 78–85.
- 36 Vignali, E., **Gasparotti, E.**, Fanni, B. M., Ait-Ali, L., Positano, V., Landini, L. & Celi, S. (2020). Development of a fully controllable real-time pump to reproduce left ventricle physiological flow, 908–919.
- 37 Zaccaria, A., Danielli, F., **Gasparotti, E.**, Fanni, B. M., Celi, S., Pennati, G. & Petrini, L. (2020). Left atrial appendage occlusion device: Development and validation of a finite element model. *Medical Engineering Physics*, 82, 104–118.
- 38 Fanni, B. M., Sauvage, E., Capelli, C., Gasparotti, E., Vignali, E., Schievano, S., Landini, L., Positano, V. & Celi, S. (2019b). A numerical and 3d printing framework for the in vivo mechanical assessment of patient-specific cardiovascular structures, 31–39.
- 39 Gasparotti, E., Cella, U., Vignali, E., Costa, E., Soldani, G., Cavallo, A., Losi, P., Biancolini, M. & Celi, S. (2019). A combined approach of numerical simulation and additive manufacturing technique for in-silico and in-vitro testing of a 3d printing-based aortic polymeric heart valve, 19–30.
- 40 **Gasparotti, E.**, Vignali, E., Losi, P., Scatto, M., Fanni, B. M., Soldani, G., Landini, L., Positano, V. & Celi, S. (2019). A 3d printed melt-compounded antibiotic loaded thermoplastic polyurethane heart valve ring design: An integrated framework of experimental material tests and numerical simulations. *International Journal of Polymeric Materials and Polymeric Biomaterials*, 68(1-3), 1–10.
- 41 Vignali, E., Manigrasso, Z., **Gasparotti, E.**, Biffi, B., Landini, L., Positano, V., Capelli, C. & Celi, S. (2019). Design, simulation, and fabrication of a three-dimensional printed pump mimicking the left ventricle motion. *The International journal of artificial organs*, 42(10), 539–547.
- 42 Vivoli, G., **Gasparotti, E.**, Rezzaghi, M., Cerone, E., Mariani, M., Landini, L., Berti, S., Positano, V. & Celi, S. (2019). Simultaneous functional and morphological assessment of left atrial appendage by 3d virtual models. *Journal of healthcare engineering*, 2019.
- 43 Capellini, K., Vignali, E., Costa, E., **Gasparotti, E.**, Biancolini, M. E., Landini, L., Positano, V. & Celi, S. (2018). Computational fluid dynamic study for aortic hemodynamics: An integrated image-based and radial basis functions mesh morphing approach. *Journal of biomechanical engineering*, 140(11).

Chapters

- 1 Celi, S., Cioffi, M., Fanni, M. B., Capellini, K., **Gasparotti, E.**, Vignali, E., Positano, V., Haxhiademi, D., Costa, E., Landini, L., Daskalopoulos, E., Piergiovanni, M., Dura, A., Gribaudo, L. & Whelan, M. (2022). Advanced non-animal models in biomedical research. In *Eur 30334/5 en, publications office of the european union, luxembourg, isbn 978-92-76-56984-8, doi:10.2760/276664, jrc130702*.
- 2 **Gasparotti, E.**, Vignali, E., Capellini, K., Fanni, B. M., Cerillo, A. G., Berti, S., Positano, V., Landini, L. & Celi, S. (2018). A healthcare digital twin using integrated imaging and finite element model: Developing a pre-planning phase to improve the performances of a cardioband procedure for the treatment of mitral regurgitation. In *Enginsoft newsletter: Simulation based engineering & data sciences* (p. 52).

- 3 Capellini, K., Costa, E., Biancolini, M. E., Porziani, S., **Gasparotti, E.**, Positano, V., Landini, L. & Celi, S. (2017). Studio parametrico della progressione dell'aneurisma dell'aorta mediante tecniche di mesh morphing. In *Analisi e calcolo* (pp. 20–25).

International Conference Papers

- 1 Dell'Agnello, F., Vignali, E., Capellini, K., Scarpolini, M. A., **Gasparotti, E.** & Celi, S. (2024). A dynamic ct based pipeline to assess hemodynamic indexes and wall stiffness of the aorta, In *9th european congress on computational methods in applied sciences and engineering*, 3-7 June 2024, Lisboa, Portugal.
- 2 Fanni, B. M., **Gasparotti, E.**, Esposito, A., Danielli, F., Berti, F., Berti, S., Pennati, G., Petrini, L. & Celi, S. (2024). Left atrial appendage occlusion: A 3d printed simulator for the patient-specific procedural planning and training, In *29th congress of the european society of biomechanics*, June 30- July 3, 2024, Edinburgh, United Kingdom.
- 3 **Gasparotti, E.**, Fanni, B. M., Dell'Amico, M., Danielli, F., Berti, F., Petrini, L., Pennati, G. & Celi, S. (2024). Design and fabrication of deformable 3d printed model of patient-specific left atrium for piv investigation, In *29th congress of the european society of biomechanics*, June 30- July 3, 2024, Edinburgh, United Kingdom.
- 4 **Gasparotti, E.**, Vignali, E., Haxhiademi, D. & Celi, S. (2024). A new clinical tool for the regulation of ecmo support in patients under cardiac shock, In *29th congress of the european society of biomechanics*, June 30- July 3, 2024, Edinburgh, United Kingdom.
- 5 Vignali, E., **Gasparotti, E.**, Bardi, F., Avril, S. & Celi, S. (2024). Fluid dynamic analysis of aaa phantoms via led-piv in a hybrid mock circulatory loop, In *29th congress of the european society of biomechanics*, June 30- July 3, 2024, Edinburgh, United Kingdom.
- 6 Vignali, E., **Gasparotti, E.**, Dell'Agnello, F., Ferrantini, C., Sacconi, L., Recchia, F. & Celi, S. (2024). Lce-based actuation of synthetic vessels: Experimental and numerical approaches, In *29th congress of the european society of biomechanics*, June 30- July 3, 2024, Edinburgh, United Kingdom.
- 7 Vignali, E., **Gasparotti, E.**, Mazzoli, M., Haxhiademi, D. & Celi, S. (2024). Extra corporeal membrane oxygenation support for perfusion in cardiac shock: A computational analysis, In *9th european congress on computational methods in applied sciences and engineering*, 3-7 June 2024, Lisboa, Portugal.
- 8 Bardi, F., Antonuccio, M. N., **Gasparotti, E.**, Vignali, E., Aguirre, M., Avril, S. & Celi, S. (2023). Fsi computational model of a patient specific aaa validated by led illumintaed piv, In *28th congress of the european society of biomechanics*, July 9-12, 2023, Maastricht, the Netherlands.
- 9 Calò, K., Capellini, K., De Nisco, G., Mazzi, V., **Gasparotti, E.**, Gallo, D., Celi, S. & Morbiducci, U. (2023a). Modelling aortic flows: Impact of wall displacements on large-scale hemodynamic coherence in ascending aorta, In *28th congress of the european society of biomechanics*, July 9-12, 2023, Maastricht, the Netherlands.
- 10 Danielli, F., Berti, F., Fanni, B. M., **Gasparotti, E.**, Celi, S., Pennati, G. & Petrini, L. (2023). On the need of a reliable numerical model to simulate the left atrial appendage occlusion: A finite element study, In *28th congress of the european society of biomechanics*, July 9-12, 2023, Maastricht, the Netherlands.
- 11 Dell'Agnello, F., Scarpolini, M. A., Capellini, K., Vignali, E., **Gasparotti, E.**, Cademartiri, F. & Celi, S. (2023b). A combined cfd and mesh morphing technique to investigate thoracic aorta hemodynamics, In *28th congress of the european society of biomechanics*, July 9-12, 2023, Maastricht, the Netherlands.
- 12 Fanni, B. M., **Gasparotti, E.**, Capellini, K., Danielli, F., Berti, F., Berti, S., Pennati, G., Petrini, L. & Celi, S. (2023). A numerical workflow to investigate the hemodynamics effects of the left atrial appendage occlusion, In *28th congress of the european society of biomechanics*, July 9-12, 2023, Maastricht, the Netherlands.

- 13 Vignali, E., **Gasparotti, E.**, Dell'Agnello, F., Capellini, K., Scarpolini, M. A., Cademartiri, F. & Celi, S. (2023). Image-based in vivo estimation of regional strain and stiffness properties of the whole aortic vessel, In *28th congress of the european society of biomechanics*, July 9-12, 2023, Maastricht, the Netherlands.
- 14 Vignali, E., Miglior, L., **Gasparotti, E.**, Ceni, A., Zirafa, C., Haxhiademi, D., Frediani, L., Melfi, F., berti, S., Gervasi, V. & Celi, S. (2023). An application for remote respiratory patterns detection in post-surgery patients, In *28th congress of the european society of biomechanics*, July 9-12, 2023, Maastricht, the Netherlands.
- 15 Bardi, F., **Gasparotti, E.**, Vignali, E., Aguirre, M., Avril, S. & Celi, S. (2023a). Validation of fsi simulations against a compliant aortic phantom in a hybrid mock circulatory loop, In *18th international symposium on computer methods in biomechanics and biomedical engineering*, May 3-5, 2023, Paris, France.
- 16 Danielli, F., Fanni, B. M., **Gasparotti, E.**, Petrini, L., Pennati, G. & Berti, F. (2023). A discussion on strategies for the in silico deployment of left atrial appendage occluders, In *18th international symposium on computer methods in biomechanics and biomedical engineering*, May 3-5, 2023, Paris, France.
- 17 **Gasparotti, E.**, Fanni, B. M., Capellini, K., Clemente, A., Berti, S. & Celi, S. (2023). Numerical simulations to evaluate the device-related effects in atrial fibrillation patients, In *18th international symposium on computer methods in biomechanics and biomedical engineering*, May 3-5, 2023, Paris, France.
- 18 Capellini, K., Dell'Agnello, F., **Gasparotti, E.**, Vignali, E., Scarpolini, M. A., Maffei, E., Clemente, A., Cademartiri, F. & Celi, S. (2023). A moving boundary meshless method to investigate thoracic aorta hemodynamics based on ct images and mesh morphing technique, In *22nd computational fluids conference*, April 25-28, 2023, Cannes, France.
- 19 Bardi, F., **Gasparotti, E.**, Vignali, E., Aguirre, M., Avril, S. & Celi, S. (2023b). Validation of fsi simulations against a compliant aortic phantom in a hybrid mock circulatory loop, In *Summer biomechanics, bioengineering, biotransport conference (sb3c)*, June 5-8, 2023, Maastricht, the Netherlands.
- 20 Bardi, F., **Gasparotti, E.**, Vignali, E., Aguirre, M., Avril, S. & Celi, S. (2022a). Mechanics and fluid dynamics characterization of a compliant patient specific aortic phantom in a hybrid mock circulatory loop, In *9th world congress of biomechanics*, July 10-14, 2022, Taipei, Taiwan.
- 21 Capellini, K., **Gasparotti, E.**, Vignali, E., Scarpolini, M. A., Costa, E., Biancolini, M. E. & Celi, S. (2022). A comparative study between cfd, fsi and radial basis functions mesh morphing technique based on biomedical images for aortic hemodynamic studies, In *9th world congress of biomechanics*, July 10-14, 2022, Taipei, Taiwan.
- 22 **Gasparotti, E.**, Quartieri, S., Vignali, E., Bardi, F., Roberta, L. & Celi, S. (2022a). Numerical simulations to evaluate the performance of the bulge test technique in the mechanical characterization of soft biological tissues, In *9th world congress of biomechanics*, July 10-14, 2022, Taipei, Taiwan.
- 23 **Gasparotti, E.**, Vignali, E., Mariani, M., Berti, S. & Celi, S. (2022a). Effects of the cardioband procedure on the regurgitant mitral valve, In *11th european solid mechanics conference*, July 4-8, 2022, Galway, Ireland.
- 24 **Gasparotti, E.**, Vignali, E., Scolaro, M., Haxhiademi, D., del Sarto, P. & Celi, S. (2022). In vitro and in silico evaluation of effects of ecmo treatment on patient specific aorta under cardiogenic shock conditions, In *9th world congress of biomechanics*, July 10-14, 2022, Taipei, Taiwan.
- 25 Vignali, E., **Gasparotti, E.**, Avril, S. & Celi, S. (2022). Linearization of material behavior for patient-specific ataa fluid-structure analysis: The small on large deformation approach, In *9th world congress of biomechanics*, July 10-14, 2022, Taipei, Taiwan.
- 26 Vignali, E., **Gasparotti, E.**, Capellini, K., Bardi, F., Scarpolini, M. A., Cademartiri, F. & Celi, S. (2022). In-vivo estimation of local aortic stiffness via ecg-gated ct data, In *11th european solid mechanics conference*, July 4-8, 2022, Galway, Ireland.

- 27 Vignali, E., **Gasparotti, E.**, Francesco, B., Scolaro, M., Haxhiademi, D., del Sarto, P. & Celi, S. (2022). An experimental analysis of cardiovascular support devices for cardiogenic shock: A mock-circulatory loop for ecmo and impella devices, In *9th world congress of biomechanics*, July 10-14, 2022, Taipei, Taiwan.
- 28 Antonuccio, M. N., Francesco, B., Vignali, E., **Gasparotti, E.**, This, A., Rouet, L., Avril, S. & Celi, S. (2022). Color-doppler based hemodynamics of aortic phantoms, In *Proceedings of 27th congress of the european society of biomechanics*, June 26-29, 2022, Porto, Portugal.
- 29 Bardi, F., **Gasparotti, E.**, Vignali, E., Aguirre, M., Avril, S. & Celi, S. (2022b). A high-power led illuminated piv setup to characterize the flow behaviour in abdominal aortic aneurysm models, In *Proceedings of 27th congress of the european society of biomechanics*, June 26-29, 2022, Porto, Portugal.
- 30 Capellini, K., **Gasparotti, E.**, Vignali, E., Fanni, B. M., Scapolini, M. A., Cademartiri, F. & Celi, S. (2022). Image-based in-vivo estimation of aortic local stiffness and hemodynamics, In *Proceedings of 27th congress of the european society of biomechanics*, June 26-29, 2022, Porto, Portugal.
- 31 Fanni, B. M., **Gasparotti, E.**, Capellini, K., Vignali, E., Santoro, G. & Celi, S. (2022). Image-based characterization of large vessels integrating in-vitro and in-silico methods, In *Proceedings of 27th congress of the european society of biomechanics*, June 26-29, 2022, Porto, Portugal.
- 32 **Gasparotti, E.**, Quartieri, S., Vignali, E., Bardi, F., Roberta, L. & Celi, S. (2022b). Numerical and experimental evaluation of the bulge test in the characterisation of the biological soft tissues, In *Proceedings of 27th congress of the european society of biomechanics*, June 26-29, 2022, Porto, Portugal.
- 33 **Gasparotti, E.**, Vignali, E., Mariani, M., Berti, S. & Celi, S. (2022b). Finite element simulations of the cardioband procedure for the treatment of the regurgitant mitral valve, In *Proceedings of 27th congress of the european society of biomechanics*, June 26-29, 2022, Porto, Portugal.
- 34 Mariotti, A., **Gasparotti, E.**, Vignali, E., Marchese, P., Celi, S. & Salvetti, M. V. (2022a). Integrating in-vivo data in cfd simulations and in in-vitro experiments of the hemodynamic in healthy and pathologic thoracic aorta, In *9th international work-conference on bioinformatics and biomedical engineering, iwbbio*, June 27-30, 2022, Gran Canaria, Spain.
- 35 Mariotti, A., Vignali, E., **Gasparotti, E.**, Marchese, P., Morello, M., Salvetti, M. V. & Celi, S. (2022). Hemodynamics in healthy and pathological thoracic aorta: Integration of in-vivo data in cfd simulations and in-vitro experiments, In *8th world congress in computational mechanics and ecomas congress*, June 5-9, 2022, Oslo, Norway.
- 36 Vignali, E., **Gasparotti, E.**, Francesco, B., Prizio, S., Haxhiademi, D., del Sarto, P. & Celi, S. (2022). Development of a physical twin for cardiovascular lifesupport devices analysis and comparison, In *Proceedings of 27th congress of the european society of biomechanics*, June 26-29, 2022, Porto, Portugal.
- 37 Iannetti, L., **Gasparotti, E.**, Berti, S. & Celi, S. (2021). Development of cfd technique to simulate the hemodynamic effects of the cardioband implantation, In *Proceedings of 17th international symposium on computer methods in biomechanics and biomedical engineering*, September 7-9, 2021, Bonn, Germany.
- 38 Bardi, F., **Gasparotti, E.**, Vignali, E., Aguirre, M., Avril, S. & Celi, S. (2021). A hardware-in-the-loop strategy for fluid dynamic characterization of cardiovascular systems, In *Proceedings of 26th congress of the european society of biomechanics*, July 11-14, 2021, Milan, Italy.
- 39 Capellini, K., **Gasparotti, E.**, Vignali, E., Ait-Ali, L., Cantinotti, M., Tripicchio, P., Murzi, M. & Celi, S. (2021). A clinical trial to assess the effectiveness of 3d models for complex cardiac surgical planning, In *Proceedings of 26th congress of the european society of biomechanics*, July 11-14, 2021, Milan, Italy.
- 40 Capellini, K., **Gasparotti, E.**, Vignali, E., Fanni, B. M., Cella, U., Costa, E., Biancolini, M. E. & Celi, S. (2021). An image-based cfd and rbf mesh morphing approach: An alternative for standard fsi technique, In *Proceedings of 26th congress of the european society of biomechanics*, July 11-14, 2021, Milan, Italy.

- 41 Danielli, F., Zaccaria, A., Stretti, E., Zaccone, M. F., **Gasparotti, E.**, Fanni, Marco, B., Capellini, K., Celi, S., Pennati, G. & Petrini, L. (2021). In-silico modeling of the left atrial appendage occlusion: Definition of a validation path, In *Proceedings of 26th congress of the european society of biomechanics*, July 11-14, 2021, Milan, Italy.
- 42 Fanni, B. M., **Gasparotti, E.**, Vignali, E., Capelli, C., Positano, V. & Celi, S. (2021). An mri-based patient-specific rcr estimation of pulmonary bifurcation using in-vitro and in-silico approaches, In *Proceedings of 26th congress of the european society of biomechanics*, July 11-14, 2021, Milan, Italy.
- 43 **Gasparotti, E.**, Vignali, E., Cerone, E., Berti, S. & Celi, S. (2021). Digital twin of cardioband® procedure for mitral valve regurgitation: In silico approach and validation, In *Proceedings of 26th congress of the european society of biomechanics*, July 11-14, 2021, Milan, Italy.
- 44 **Gasparotti, E.**, Vignali, E., Sclaro, M., del Sarto, P., Celi, S. & Haxhiademi, D. (2021). In vitro study of effects of ecmo on patient specific aorta under cardiogenic shock conditions, In *Proceedings of 26th congress of the european society of biomechanics*, July 11-14, 2021, Milan, Italy.
- 45 Geronzi, L., **Gasparotti, E.**, Groth, C., Cella, U., Biancolini, M. E. & Celi, S. (2021). Patient-specific prosthetic aortic valve: A high-fidelity approach to reduce simulation time, In *Proceedings of 26th congress of the european society of biomechanics*, July 11-14, 2021, Milan, Italy.
- 46 Vignali, E., **Gasparotti, E.**, Mariotti, A., Salvetti, M. V. & Celi, S. (2021). In-silico and in-vitro uncertainty quantification of inlet conditions of the aortic complex, In *Proceedings of 26th congress of the european society of biomechanics*, July 11-14, 2021, Milan, Italy.
- 47 Stretti, E., Zaccone, M. F., Zaccaria, A., Danielli, F., **Gasparotti, E.**, Fanni, B. M., Capellini, K., Celi, S., Pennati, G. & Petrini, L. (2020). In-silico model of left atrial appendage occlusion: Comparison with implantation in 3d printed patient specific geometry, In *Proceedings of international CAE conference*, November 30 – December 4, Vicenza, Italy.
- 48 Capellini, K., Celi, S., Cella, U., **Gasparotti, E.**, Vignali, E., Fanni, B. M. & Costa, E. (2019). A novel fsi approach for the study of the aorta hemodynamics: An integrated imaged based and rbf mesh morphing technique, In *Proceedings of international CAE conference*, October 28 – 29, Vicenza, Italy.
- 49 Danielli, F., Gjini, E., Zaccaria, A., **Gasparotti, E.**, Fanni, B. M., Petrini, L., Celi, S. & Pennati, G. (2019). Numerical model of a left atrial appendage occluder, In *Proceedings of international CAE conference*, October 28 – 29, Vicenza, Italy.
- 50 Fanni, B. M., **Gasparotti, E.**, Capellini, K., Capelli, C., Vignali, E., Positano, V. & Celi, S. (2019). A novel image-based formulation for enhanced patient-specific in silico simulations of cardiovascular interventions, In *Proceedings of international CAE conference*, October 28 – 29, Vicenza, Italy.
- 51 **Gasparotti, E.**, Vignali, E., Cella, U., Geronzi, L., Costa, E. & Celi, S. (2019). A novel fsi-rbf mesh morphing environment to design a new polymeric aortic valve, In *Proceedings of international CAE conference*, October 28 – 29, Vicenza, Italy.
- 52 Vignali, E., Di Bartolo, F., **Gasparotti, E.**, Malacarne, A., Positano, V., Landini, L. & Celi, S. (2019). In silico evaluation of a patient specific aortic case through experimental mechano microstructural characterization, In *Proceedings of international CAE conference*, October 28 – 29, Vicenza, Italy.
- 53 Vignali, E., **Gasparotti, E.**, Mariotti, A., Capellini, K., Haxhiademi, D., Bianchi, G., Fanni, B. M., Positano, V., Landini, L., Salvetti, M. V. & Celi, S. (2019). Development of a custom mock circulatory loop for in-vitro study of patient specific aortic branches, In *Proceedings of international society for mechanical circulatory support*, October 2019, Bologna, Italy.
- 54 Fanni, B. M., Sauvage, E., Capelli, C., **Gasparotti, E.**, Vignali, E., Schievano, S., Landini, L., Positano, V. & Celi, S. (2019a). A numerical and 3d printing framework for the in vivo mechanical assessment of patient specific cardiovascular structures, In *Proceedings of 11 international conference on simulation for additive manufacturing*, Pavia, Italy.

- 55 **Gasparotti, E.**, Cella, U., Vignali, E., Costa, E., Soldani, G., Cavallo, A., Losi, P., Biancolini, M. E. & Celi, S. (2019). A combined approach of numerical simulation and additive manufacturing technique for in-silico and in-vitro testing of a 3d printing-based aortic polymeric heart valve, In *Proceedings of 11 international conference on simulation for additive manufacturing*, Pavia, Italy.
- 56 di Bartolo, F., Vignali, E., Malacarne, A., **Gasparotti, E.**, Landini, L., Positano, V. & Celi, S. (2019). Optomechanical characterization of soft biological tissues: An integration of biaxial test and sals technique, In *Proceedings of european society of biomechanics*, Vienna, Austria.
- 57 Celi, S., Benigno Marco, F., **Gasparotti, E.**, Capellini, K., Vignali, E., Di Leonardo, M., Cerone, E., Pastormerlo, L., Paradossi, U., Positano, V., Landini, L. & Berti, S. (2018). A computational framework for personalized blood flow analysis and device implantation to optimize laa closure procedure, In *Csi focus laa vol. 2018*, Frankfurt, Germany.
- 58 Capellini, K., Fanni, B. M., **Gasparotti, E.**, Vignali, E., Sabatino, D., Di Leonardo, M., Berti, S., Landini, L., Positano, V. & Celi, S. (2018). The role of simulations for laa closure procedure: From planning to post-procedural analysis, In *Proceedings of international CAE conference*, Vicenza, Italy.
- 59 Fanni, B. M., Celi, S., **Gasparotti, E.**, Vignali, E., Capellini, K., Schievano, S., Landini, L., Capelli, C. & Positano, V. (2018). A combined in silico and in vitro image-based approach for the mechanical characterization of patient-specific cardiovascular structures, In *Proceedings of international CAE conference*, Vicenza, Italy.
- 60 **Gasparotti, E.**, Vignali, E., Capellini, K., Fanni, B. M., Positano, V., Landini, L. & Celi, S. (2018). Digital twin in healthcare: Development of an integrated imaging and finite element model of cardioband[®] procedure for the treatment of mitral regurgitation, In *Proceedings of international CAE conference*, Vicenza, Italy.
- 61 Vignali, E., **Gasparotti, E.**, Manigrasso, Z., Biffi, B., Capellini, K., Fanni, B. M., Schievano, S., Landini, L., Positano, V., Landini, L. & Celi, S. (2018). A numerical and experimental approach for the design of a novel 3d printed bioinspired cardiac pneumatic pump, In *Proceedings of international CAE conference*, Vicenza, Italy.
- 62 Fanni, B. M., **Gasparotti, E.**, Faita, F., Di Lascio, N., Schievano, S., Landini, L., Celi, S., Positano, V. & Capelli, C. (2018a). An integrated image-based framework for the mechanical characterization of patient-specific blood vessels, In *Proceedings of virtual physiological human conference VPH*, Zaragoza, Spain.
- 63 Manigrasso, Z., **Gasparotti, E.**, Biffi, B., Vignali, E., Schievano, S., Landini, L., Capelli, C. & Celi, S. (2018). A novel 3d printed bioinspired cardiac pneumatic pump: From design to numerical and experimental study, In *Proceedings of virtual physiological human conference VPH*, Zaragoza, Spain.
- 64 Fanni, B. M., **Gasparotti, E.**, Vignali, E., Capellini, K., Vivoli, G., Mariani, M., Rezzaghi, M., Landini, L., Positano, V., Celi, S. & Berti, S. (2018). Importance of left atrium fluid dynamics for the planning of laa closure procedure: An integrated computational fluid dynamics and morphological study, In *Proceedings of european society of cardiology conference ESC*, Munich, Germany.
- 65 Fanni, B. M., **Gasparotti, E.**, Faita, F., Di Lascio, N., Schievano, S., Landini, L., Celi, S., Positano, V. & Capelli, C. (2018b). Image-based mechanical characterization of large blood vessels for patient-specific simulations, In *Proceedings of 8th world congress of biomechanics*, Dublin, Ireland.
- 66 **Gasparotti, E.**, Vignali, E., Soldani, G., Losi, P., Scatto, M. & Celi, S. (2018). Melt compounded biocompatible thermoplastic polyurethane (TPU) for the engineering of 3D printed aortic heart valve ring: Design, fabrication, testing and simulation, In *Proceedings of international society for biomedical polymers and polymeric biomaterials*, Krakow, Poland.
- 67 **Gasparotti, E.**, Vignali, E., Vivoli, G., Cerillo, A. G., Berti, S., Landini, L., Positano, V. & Celi, S. (2018). Towards a patient-specific finite element simulation of cardioband procedure for the treatment of mitral regurgitation, In *Proceedings of 8th world congress of biomechanics*, Dublin, Ireland.

- 68 Vignali, E., **Gasparotti, E.**, Losi, P., Murzi, M., Farneti, P. A., Landini, L., Positano, V. & Celi, S. (2018). Ascending thoracic aortic fe simulation by integrating patient-specific data from imaging, mechanical properties and histological data, In *Proceedings of 8th world congress of biomechanics*, Dublin, Ireland.
- 69 **Gasparotti, E.**, Vivoli, G., Cerillo, A. G., Berti, S., Landini, L. & Celi, S. (2017). An integrated framework for a new patient-specific mitral annuloplasty procedure: From medical images to numerical simulation, In *Proceedings of III.international conference on biomedical technology*, Hannover, Germany.
- 70 Vivoli, G., **Gasparotti, E.**, Rezzaghi, M., Mariani, M., Positano, V., Berti, S., Landini, L. & Celi, S. (2017a). 3d multimodal image framework for left atrial appendage closure, In *Proceedings of csi laa congress*, Frankfurt, Germany.
- 71 **Gasparotti, E.**, Vignali, E., Cerone, E., Cerillo, A. G., Berti, S., Landini, L. & Celi, S. (2016). Towards a finite element tool to simulate a transcatheter anchor-based mini invasive system for mitral valve regurgitation, In *Proceedings of 19th international conference on computational biomechanics*, London, UK.

National Conferences Proceedings

- 1 Astore, M., **Gasparotti, E.**, Vignali, E., Celi, S. & Marino, M. (2023). Experimental and modellind analyses for understanding of the structure-mechanics relationship of aortic tissue, In *Proceedings of xii annual meeting of the italian chapter of european society of biomechanics*. October 6 – 7, Turin, Italy.
- 2 Capellini, K., Dell'Agnello, F., **Gasparotti, E.**, Vignali, E., Scapolini, M. A., Cademartiri, F. & Celi, S. (2023). Towards a digital twin for aorta: An in-silico image-based approach coupling numerical simulations and ct-gated images to assess patients specific aortic hemodynamics, In *Xxiv congresso sirc 2023*. october 18 – 20, Imola, Italy.
- 3 Dell'Agnello, F., Vignali, E., Scapolini, M. A., Capellini, K., **Gasparotti, E.**, Cademartiri, F. & Celi, S. (2023). A mesh morphing tool for moving boundaries cfd simulations and wall stiffness estimation of the aorta, In *Proceedings of xii annual meeting of the italian chapter of european society of biomechanics*. September 18 – 19, Turin, Italy.
- 4 Dell'Agnello, F., Scapolini, M. A., Capellini, K., Vignali, E., **Gasparotti, E.**, Cademartiri, F. & Celi, S. (2023a). Effects of wall motion on the hemodynamics of the aorta, In *Proceedings of wecm23 - 2nd workshop on experimental and computational mechanics*. September 20 – 22, Pisa, Italy.
- 5 Antonuccio, M. N., **Gasparotti, E.**, Giuggioli, L., Vignali, E., Avril, S., This, A., Rouet, L. & Celi, S. (2022). An experimental/computational approach for fluid dynamic characterization of aaa, In *Proceedings of xi annual meeting of the italian chapter of european society of biomechanics*. October 6 – 7, Massa, Italy.
- 6 Bardi, F., Antonuccio, M. N., **Gasparotti, E.**, Aguirre, M., Avril, S., Vignali, E. & Celi, S. (2022). Led illuminated piv velocity field characterization in a patient specific aortic aneurysm phantom, In *Proceedings of xi annual meeting of the italian chapter of european society of biomechanics*. October 6 – 7, Massa, Italy.
- 7 Danielli, F., Berti, F., Fanni, B. M., **Gasparotti, E.**, Celi, S., Pennati, G. & Petrini, L. (2022). A comprehensive study to develop a numerical model of the left atrial appendage occlusion, In *Proceedings of xi annual meeting of the italian chapter of european society of biomechanics*. October 6 – 7, Massa, Italy.
- 8 **Gasparotti, E.**, Vignali, E., Haxhiademi, D., Francesco, B., Scolaro, M., Del Sarto, P. & Celi, S. (2022). Bench to bedside: In-silico and in-vitro evaluation of shocked patients under the ecmo support, In *Proceedings of italian chapter of the european society of biomechanics*. October 6 – 7, Massa, Italy.
- 9 Zaccaria, A., Danielli, F., **Gasparotti, E.**, Fanni, B. M., Migliavacca, F., Pennati, G., Celi, S. & Petrini, L. (2020). Finite element model of a left atrial appendage occlusion device, In *Proceedings of virtual physiological human conference*. Paris, France.
- 10 Capellini, K., Cella, U., Costa, E., **Gasparotti, E.**, Fanni, B. M., Biancolini, M. E. & Celi, S. (2019). A coupled cfd and rbf mesh morphing technique as surrogate for one-way fsi study, In *Proceedings of italian chapter of the european society of biomechanics*. Bologna, Italy.

- 11 Capellini, K., Fanni, B. M., **Gasparotti, E.**, Di Leonardo, M., Cerone, E., Positano, V., Landini, L., Berti, S. & Celi, S. (2019). In-silico assessment of thrombosis risk: A cfd study of left atrial and left atrial appendage, In *Proceedings of italian chapter of the european society of biomechanics*. Bologna, Italy.
- 12 Capellini, K., **Gasparotti, E.**, Evangelista, C., Alfonzetti, F., Ait-Ali, L., Cantinotti, M., Murzi, M., Landini, L., Positano, V., Tripicchio, P. & Celi, S. (2019). Stampa 3d e modelli virtuali per lo studio delle patologie cardiache congenite, In *Proceedings of italian digital biomanufacturing network congress*. Pisa, Italy.
- 13 Fanni, B. M., Capellini, K., **Gasparotti, E.**, Vignali, E., Positano, V., Landini, L., Cerone, E., Berti, S. & Celi, S. (2019). L'in-silico e l'in-vitro per il planning clinico della procedura di chiusura percutanea dell'auricola sinistra, In *Proceedings of italian digital biomanufacturing network congress*. Pisa, Italy.
- 14 **Gasparotti, E.**, Vignali, E., Capellini, K., Haxhiademi, D., Bianchi, G., Fanni, B. M., Landini, L., Positano, V. & Celi, S. (2019). Sviluppo di un banco prova paziente specifico per lo studio in-vitro della fluidodinamica dell'arco aortico, In *Proceedings of italian digital biomanufacturing network congress*. Pisa, Italy.
- 15 **Gasparotti, E.**, Vignali, E., Cerone, E., Berti, S., Positano, V., Landini, L. & Celi, S. (2019). In-silico healthcare: First human simulations of cardioband® procedure for mitral regurgitation, In *Proceedings of italian chapter of the european society of biomechanics*. Bologna, Italy.
- 16 Vignali, E., Poli, F., di Bartolo, F., **Gasparotti, E.**, Malacarne, A., Positano, V., Landini, L. & Celi, S. (2019). Biaxial and optomechanical characterization of soft tissues: A novel setup and experimental tests, In *Proceedings of italian chapter of the european society of biomechanics*. Bologna, Italy.
- 17 Zaccaria, A., **Gasparotti, E.**, Fanni, B. M., Migliavacca, F., Pennati, G., Petrini, L. & Celi, S. (2019). Finite element model of a left atrial appendage occlusion device, In *Proceedings of italian chapter of the european society of biomechanics*. Bologna, Italy.
- 18 Mariotti, A., Capellini, K., **Gasparotti, E.**, Celi, S. & Salvetti, M. V. (2019). Comparison between numerical and mri data of ascending aorta hemodynamic in a circulatory mock loop, In *Proceedings of the italian association of theoretical and applied mechanics*. Rome, Italy.
- 19 Vignali, E., **Gasparotti, E.**, Fanni, B. M., Ait-Ali, L., Positano, V., Landini, L. & Celi, S. (2019). Development of a fully controllable real-time pump to reproduce left ventricle physiological flow, In *Proceedings of the italian association of theoretical and applied mechanics*. Rome, Italy.
- 20 **Gasparotti, E.**, Cioffi, M., Positano, V., Vignali, E., Fanni, B. M., Capellini, K., Haxhiademi, D., Costa, E. & Celi, S. (2019). Analysis of alternative methods and models for research in cardiovascular disease, In *Proceedings of 2nd centro 3r annual meeting*. Genoa, Italy.
- 21 Manigrasso, Z., **Gasparotti, E.**, Biffi, B., Vignali, E., Schievano, S., Landini, L., Positano, V., Capelli, C. & Celi, S. (2018). Design of a novel 3d printed mock cardiac pump: In-silico and experimental evaluation, In *Proceedings of 2th italian digital biomanufacturing network congress*. Pavia, Italy.
- 22 Vignali, E., **Gasparotti, E.**, Scatto, M., Losi, P., Fanni, B. M., Capellini, K., Landini, L., Positano, V. & Celi, S. (2018). 3d printing of an antibiotic-loaded heart valve ring prosthesis in thermoplastic polyurethane: Fabrication, testing and simulation, In *Proceedings of italian digital biomanufacturing network congress*. Pavia, Italy.
- 23 Fanni, B. M., **Gasparotti, E.**, Celi, S., Positano, V., Faita, F., Di Lascio, N., Landini, L., Schievano, S. & Capelli, C. (2017a). Image-based mechanical characterization of large blood vessels: A validated numerical study, In *Proceedings of simulia abaqus regional user meeting*. Milan, Italy.
- 24 Vivoli, G., **Gasparotti, E.**, Rezzaghi, M., Mariani, V., Massimiliano and Positano, Berti, S., Landini, L. & Celi, S. (2017). Multimodal 3d image fusion to support percutaneous left atrial appendage closure, In *Proceedings of 3 8th national congress italian society of interventional cardiology*. Milan, Italy.

- 25 Fanni, B. M., **Gasparotti, E.**, Celi, S., Positano, V., Faita, F., Di Lascio, N., Landini, L., Schievano, S. & Capelli, C. (2017b). Image-based mechanical characterization of large blood vessels, In *Proceedings of italian chapter of the european society of biomechanics*. Rome, Italy.
- 26 **Gasparotti, E.**, Vignali, E., Capellini, K., Vivoli, G., Cerillo, A. G., Positano, V., Berti, S., Landini, L. & Celi, S. (2017). A fe tool to simulate a trans-catheter anchor-based system for mitral valve regurgitation, In *Proceedings of italian chapter of the european society of biomechanics*. Rome, Italy.
- 27 Vivoli, G., **Gasparotti, E.**, Rezzaghi, M., Mariani, M., Positano, V., Berti, S., Landini, L. & Celi, S. (2017b). 3d left atrial appendage modelling: A multimodal imaging approach, In *Proceedings of italian chapter of the european society of biomechanics*. Rome, Italy.

In compliance with the Italian legislative Decree no. 196 dated 30/06/2003 and GDPR (EU Regulation 2016/679), I hereby authorize you to use and process my personal details contained in this document.

Massa, 22nd May 2024

Emanuele Gasparotti