Curriculum Vitae Franca Scocozza

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GENERAL INFORMATION

Franca Scocozza
Biomedical Engineering
Postdoctoral Researcher in Bioprinting and Tissue Engineering, University of Pavia
franca.scocozza@unipv.it
Date and place of birth: 31/12/1991, Salerno (Italy)
Nationality: Italian
Scopus ID: 57209746201 | ORCID: 0000-0003-0125-3651 | ResearcherID: Y-8880-2019
Linkedin.com/Franca Scocozza

Personal statement

I am currently a Post-Doctoral Researcher at the University of Pavia, where I conduct research in the field of 3D bioprinting for regenerative medicine.
I hold a Master's degree in Biomedical Engineering and a Ph.D. in Bioengineering, Bioinformatics, and Health Technologies, which earned me the GNB Ph.D Award 2023 for my work on bio-printed scaffolds for bone regeneration.
I also listed as an inventor on an international patent application (PCT/IB2022/052098). Alongside my academic research, I have pursued an entrepreneurial path as CEO and co-founder of P4P s.r.l., an academic spin-off specializing in smart sensors based on functionalized polymers, in collaboration with colleagues from the pharmaceutical sciences.
I was recently awarded the *Giovani Ricercatori Gran*t from Fondazione Cariplo to support the development of my independent scientific identity.
Throughout my journey, I have always sought to combine research, innovation, and entrepreneurship to bring biomedical technologies from the lab to the patient's bedside—a mission I believe lies at the heart of bioengineering.

Career break

01/04/2023 – 23/10/2023	In compliance with Legislative Decree 151/2001, I have been exempted from participating in biological and chemical laboratory activities since the onset of my pregnancy.
04/11/2023 – 03/04/2024 (5 months)	Statutory maternity leave.

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1. EDUCATION AND TRAINING

1.1 Academic qualification

Feb 2023 **Ph.D. in Bioengineering, Bioinformatics, and Health Technology**
University of Pavia, Pavia, Italy
Thesis title: *Design and assessment of a 3D bio-printed hybrid scaffold for bone tissue engineering*
Supervisor: Prof. Michele Conti
Co-supervisors: Prof. Ferdinando Auricchio, Prof. Maria Luisa Torre

Feb 2017 **M.Sc. in Cell and Tissue Bioengineering**
University of Pavia, Pavia, Italy
Thesis title: *Customizzazione di una stampate 3D FDM per l'erogazione di alginato di sodio per bioink*
Supervisor: Prof. Michele Conti
Co-supervisor: Prof. Stefania Marconi
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Apr 2014 **B.Sc. in Bioengineering**
University of Pavia, Pavia, Italy

Jul 2010 **Language High School Diploma**
Liceo Magistrale Regina Margherita, Salerno, Italy

1.2 Professional qualification

Jul 2017 **Qualification for the profession of Industrial Engineer – Biomedical Engineering Sector.**
University of Pavia, Pavia, Italy

1.3 Other (selected training courses and summer schools)

- "Computer-aided design: numerical simulations for industrial applications (course and exam, University of Pavia)", course 6 CFU and exam – University of Pavia, Italy (2022).
- "Applications of engineered cellular systems for the pharmaceutical industry", course 6 CFU and exam – the University of Pavia, Italy (2022).
- XL Annual GNB School 2021 "Biofabrication: an integrated bioengineering approach for the automated fabrication of biological structures for clinical and research applications", Bressanone, Italy (2021)
- XXXIX Annual GNB School 2020 "AI-enabled health care: from decision support to autonomous robots", Bressanone, Italy (2020).
- "Statistical models useful in biomedical and behavioral research – A "hands-on" approach using package R" – University of Pavia, Italy (2020).
- Lake Como School: "Alternative Methods and Models in Science", Como, Italy (2020).
- Assolombarda: "Effective Communication", online course (2020).
- TERM Summer School on Tissue Engineering, University of Trento, Italy (2018).

2. RESEARCH AND PROFESSIONAL EXPERIENCE

2.1 Research Activities at Italian Institution

Dec 2022 – Present **Postdoctoral Fellow**
Dept. of Civil Engineering and Architecture, University of Pavia, Pavia, Italy
Fellow title: *Development of additive manufacturing technologies for life sciences applications* (funded by DORIAN - Department of Excellence Project 2023–2027 and NODES – PNRR Project).
Research activities

- I worked on utilizing biofabrication techniques to develop in vitro models for tissue engineering, specifically vascular and tumor models.

- I contributed to the creation of biosensors by combining bioprinting and synthetic biology techniques to detect contaminants in soil, focusing on advancing both tissue engineering applications and environmental monitoring.

Dec 2019 – Sep 2022 **Ph.D. Research Fellow**
University of Pavia, Pavia, Italy
Research activities

- The main project of my Ph.D focused on using CAD and CAE tools to design, manufacture, and assess a 3D bio-printed hybrid scaffold enriched with lyophilized secretome (i.e., lyosecretome) from adipose mesenchymal stem cells (MSCs). The scaffold was developed for the controlled release of MSCs paracrine factors to promote bone regeneration, with potential applications in the maxillofacial field. This hybrid scaffold and the fabrication technique were the subject of a PCT patent (see section 5. PATENTS). In addition, computational models have been employed to support the design of the hybrid scaffold predicting both mechanical and release kinetics properties avoiding the trial-and-error procedure.
- During the Ph.D I also focused on with different aspects of 3D printing and bioprinting including preparing and characterizing biomaterials, designing scaffold geometry and porosity, optimizing printing processes, and implementing computational methods (e.g., finite element analysis) to predict mechanical behavior. I also conducted in vitro mechanical and biological tests. In this context, I deal with different TE applications (e.g., in vitro tumor model, in vitro skeletal muscle, Design and biofabrication of bacterial hybrid living materials, and 3D model of human cardiac fibrosis).

Jul – Dec 2019 **Research Fellow**
IRCCS Policlinico San Matteo, Pavia, Italy
Fellow title: *3D printing of bioscaffold for bone regeneration*
Research activity: This activity was carried out within the Ricerca Corrente 2018 Project at the IRCCS Policlinico San Matteo in Pavia. The activity involved the 3D printing of thermoplastic biomaterials, such as polycaprolactone (PCL) and polycaprolactone-hydroxyapatite (PCL-HA) composites, for the fabrication of bioscaffolds aimed at bone tissue engineering. The process involved material selection, optimization of the 3D printing process, and the development of the process under sterile conditions, which is crucial for in vitro culture. I also contributed to vitality, proliferation, and differentiation tests of stem cells derived from adipose tissue.

Aug 2017 – Jun 2019 **Research Fellow**
Dept. of Civil Engineering and Architecture, University of Pavia, Pavia, Italy
Fellow title: *Models for Vascular Biomechanics*
Research activities

- I deal with the selection of biomaterials and the biofabrication of 3D cell models, with a particular focus on vascular models, using advanced techniques such as bioprinting. I
- was also involved in the fabrication and characterization of 3D biological constructs using bioprinting techniques to create cellular models for performing biological studies.

2.2 Research and Professional Activity at Spin-Off

Jul 2022 – Dec 2024 **CEO and Co-founder**
P4P s.r.l., University of Pavia Spin-off (company active until Dec 2024).
Company mission: Developed controlled-release systems of bioactive molecules for life sciences.
Activities

- As CEO, I led the company's strategy, operations, and growth. I defined the vision and mission, made key decisions, and managed day-to-day activities such as product development, market analysis, and financial planning. I also built relationships with investors and partners, while fostering an innovative company culture to drive team success and achieve key milestones.

- Additionally, I was actively involved in the scientific aspects of the company, including the development and improvement of products. I conducted experimental tests to ensure the products met both market needs and scientific standards.

Mar – Dec 2019 **Participant, Start-up Acceleration Program**
G-Factor, Fondazione Golinelli, Bologna, Italy
Activities: During the G-FORCE program by the Golinelli Foundation, as co-founder of the start-up, I worked on refining the business model, product-market fit, and value proposition of our start-up. I participated in mentoring sessions, collaborated with experts to strengthen our scientific foundation, and gained experience in pitching to potential investors. This opportunity also allowed me to present the start-up's mission and connect with potential investors, helping to drive the growth of the company.

3.2 Research and Professional Activity at International Companies

Mar – Jul 2022 **Traineeship**
CELLINK Bioprinting AB, Gothenburg, Sweden
Research activities: During my experience with Cellink AB, a global leader in 3D bioprinting technologies, I deepened my expertise in advanced biofabrication techniques. In particular, I mastered the FRESH (Freeform Reversible Embedding of Suspended Hydrogels) method for printing complex, high-fidelity structures. This hands-on training enhanced my practical skills in tissue engineering and hydrogel-based scaffold fabrication.

3. TEACHING AND SUPERVISION

3.1 Teaching Activities

26-28 Nov 2024 **Lecturer**
Ph.D. Course of Design, Modeling, and Simulation in Engineering, University of Pavia, Pavia, Italy
Course title: *An Introduction to Bioprinting: Theoretical Background and Hands-on Practice*
Course topic: Basic understanding of 3D bioprinting, covering both theoretical principles and practical applications. Designing, formulating, and characterizing the biomaterial ink and bioink. 3D bioprinting fabrication strategies and characterization of printed structures. Hands-on sessions will focus on bioink preparation, bioprinting, and characterization of printed structures, to help students address challenges encountered in laboratory and research activities.
6 hours of lessons, 8 hours of laboratory activities

Jun 2023 **Seminar Lecturer**
Lake Como, Como, Italy
Seminar title: *3D bioprinting blood vessel. Literature overview*
Seminar topic: Overview of the creation of blood vessel models and grafts through biofabrication techniques. In addition, examples of literature were presented.
2 hours

14-17 Feb 2022 **Tutor**
Winter School, University of Pavia, Pavia, Italy
Course title: *Bioprinting Winter School: From Printing set-up to Laboratory Analysis and Biomechanics*
Course topic: Bioprinting Winter School provides the basic principles related to 3D (bio)printing both from a theoretical and practical point of view.
6 hours of laboratory activities

2020 and 2021 **Seminar Lecturer**
"Applied Histology" course of Medical Biotechnologies Program, University of Pavia (3 CFU)
Seminar title: *3D bioprinting applications for 3D biological models*

Seminar topic: Overview of 3D printing and bioprinting technologies and workflow. Focus on 3D bioprinting applications.
2 hours of lessons

3.2 Mentoring and Supervision

- Co-supervised 3 Bachelor's in bioengineering.
- Co-supervised 8 Master's theses in bioengineering.

4. RESEARCH PUBLICATION

N° of documents: 20 including 1 Review, 17 Articles, and 3 Book chapters (Scopus).
N° of citation (excluding self-citations): 270 (Scopus).
H-index (excluding self-citations): 9 (Scopus).

Peer-reviewed publications

1. **Scocozza F.**, Di Gravina G. M., Bari E., Auricchio F., Torre M. L., Conti M.
Prediction of the mechanical response of a 3D (bio)printed hybrid scaffold for improving bone tissue regeneration by structural finite element analysis.
Journal of the Mechanical Behavior of Biomedical Materials, 2023, 142: 105822. DOI: 10.1016/j.jmbbm.2023.105822.
Journal Rank in 2023 (SJR): Q1 - Mechanics of Materials; Q2 - Biomedical Engineering
Impact Factor in 2023: 3.3.
Role and contribution: First author and corresponding author.
Paper topic: This study investigates the mechanical properties of a co-printed hybrid scaffold made of polycaprolactone (PCL) and an alginate-based hydrogel. The scaffold is designed for in vivo bio-integration and load-bearing. Structural finite element analysis (FEA) under compression was performed, comparing numerical results with experimental data. The study explores the impact of alginate inclusion and infill patterns on scaffold stiffness, providing insights for bone tissue engineering applications.

2. **Scocozza F.**, Sakaj M., Auricchio F., Marconi S., Riello P., Ferrari C., Cansolino L., Catenacci L., Sorrenti M., Scatto M., Conti M.
Shape fidelity and sterility assessment of 3D printed polycaprolactone and hydroxyapatite scaffolds.
Journal of Polymer Research, 2021, 28: 1-13. DOI: 10.1007/s10965-021-02675-y.
Journal rank in 2021 (SJR): Q2 - Materials Science (miscellaneous); Q2 - Polymers and Plastics.
Journal IF in 2021*:* 2.7.
Role and contribution: First author and corresponding author.
Paper topic*:* This study evaluates the shape fidelity and sterility of 3D printed scaffolds made from polycaprolactone and hydroxyapatite, which have potential applications in bone tissue engineering.

3. **Scocozza F.**, Bina V., Caliogna L., Brancato A.M., Mosconi M., Fassina L., Conti M., Gastaldi G.
Effect of hydroxyapatite and pulsed electromagnetic field on osteogenic differentiation of human stem cells seeded onto 3D-printed polycaprolactone scaffolds for future bone graft transplantation.
Polymers for Advanced Technologies, 2024, 35.4: e6386. DOI: 10.1002/pat.6386.
Journal rank in 2024 (SJR): Q2 - Polymers and Plastics
Journal IF in 2024: 3.4
Role and contribution: First author
Paper topic: This study investigates the combined effect of hydroxyapatite and pulsed electromagnetic fields on the osteogenic differentiation of human stem cells, aiming to optimize 3D-printed polycaprolactone scaffolds for bone graft applications.

4. Ragazzini S*., **Scocozza F*.**, Bernava G., Auricchio A., Colombo G.I., Barbuto M., Conti M., Pesce M., Garoffolo G.
Mechanosensor YAP cooperates with TGF-β1 signaling to promote myofibroblast activation and matrix stiffening in a 3D model of human cardiac fibrosis.
Acta Biomaterialia, 2022, 152: 300-312. DOI: 10.1016/j.actbio.2022.08.063.

Journal rank in 2022 (SJR): Q1 - Biomedical Engineering.
Journal IF in 2022: 9.4.
Role and contribution: Co-first author.
Paper topic: This study explores how the mechanosensor YAP interacts with TGF-β1 signaling to drive myofibroblast activation and matrix stiffening in a 3D cardiac fibrosis model, providing insights into the mechanobiology of cardiac diseases.

5. Bari E.*, **Scocozza F.***, Perteghella S., Sorlini M., Auricchio F., Torre M.L., Conti M.
3D Bioprinted Scaffolds Containing Mesenchymal Stem/Stromal Lyosecretome: Next Generation Controlled Release Device for Bone Regenerative Medicine.
Pharmaceutics, 2021, 13.4: 515. DOI: 10.3390/pharmaceutics13040515.
Journal rank in 2021 (SJR): Q1 - Pharmaceutical Science.
Journal IF in 2021: 5.4.
Role and contribution: Co-first author.
Paper topic: This study investigates the development of 3D bioprinted scaffolds containing mesenchymal stem/stromal lyosecretome, aimed at improving bone regeneration through controlled release mechanisms and biological efficacy in vitro.

6. Loi G., **Scocozza F**., Benedetti L., Auricchio F., Marconi S., Delgrosso E., Cusella G., Ceccarelli G., Conti M.
Design, development, and benchmarking of a bioreactor integrated with 3D bioprinting: Application to skeletal muscle regeneration.
Bioprinting, 2024, 42: e00352, DOI: 10.1016/j.bprint.2024.e00352.
Journal rank in 2024 (SJR): Q1 - Biomedical Engineering
Journal IF in 2024: 6.81.
Role and contribution: Co-author.
Paper topic: This research presents the design and development of an innovative bioreactor integrated with 3D bioprinting technology, aimed at enhancing skeletal muscle regeneration through precise tissue engineering and improved functional outcomes.

7. Delgrosso E., **Scocozza F.**, Cansolino L., Riva F., Conti M., Loi G., Auricchio F., Postuma I., Bortolussi S., Cobianchi L., Ferrari C.
3D bioprinted osteosarcoma model for experimental boron neutron capture therapy (BNCT) applications: Preliminary assessment.
Journal of Biomedical Materials Research Part B: Applied Biomaterials, 2023, 111.8: 1571–1580. DOI: 10.1002/jbm.b.35255.
Journal rank in 2023 (SJR): Q2 - Biomedical Engineering
Journal IF in 2023: 3.97
Role and contribution: Co-author
Paper topic: This study presents a 3D in vitro osteosarcoma model optimized for Boron Neutron Capture Therapy (BNCT) applications. It identifies the ideal parameters for bioprinting, including cell density and crosslinking conditions, using the UMR-106 osteosarcoma cell line. The resulting model provides a promising alternative to traditional 2D cultures and in vivo models for BNCT-related experimental testing.

8. Usai F., Loi G., **Scocozza F.**, Bellato M., Castagliuolo I., Conti M., Pasotti L.
Design and Biofabrication of Bacterial Living Materials with Robust and Multiplexed Biosensing Capabilities.
Materials Today Bio, 2022, 18: 100526. DOI: 10.1016/j.mtbio.2022.100526.
Journal Rank in 2022 (SJR): Q1 - Biomedical Engineering.
Journal IF in 2022: 8.3.
Role and contribution: Co-author.
Paper topic: This study presents a workflow for constructing bacterial-engineered living materials (ELMs) with synthetic biosensing circuits that provide red pigmentation as a visible readout in response to chemical inducers. The research demonstrates the robust performance of these ELMs in terms of longevity, sensing in harsh conditions, and the ability to function in multiplexed

biosensing applications, paving the way for their use as in-situ monitoring tools or easy-to-use sensing kits.

9. Ronzoni F.L., Aliberti F., **Scocozza F.**, Benedetti L., Auricchio F., Sampaolesi M., Cusella G., Redwan I.N., Ceccarelli G., Conti M.
Myoblast 3D bioprinting to burst in vitro skeletal muscle differentiation.
Journal of Tissue Engineering and Regenerative Medicine, 2022, 16.5: 484-495. DOI: 10.1002/term.3293.
Journal rank in 2022 (SJR): Q2 - Biomedical Engineering.
Journal IF in 2022*:* 3.1.
Role and contribution: Co-author.
Paper topic*:* This study demonstrates the potential of 3D bioprinted myoblast constructs to enhance skeletal muscle differentiation in vitro, contributing to advancements in tissue engineering for muscle regeneration.

10. Pisani S., Dorati R., **Scocozza F.**, Mariotti C., Chiesa E., Bruni G., Genta I., Auricchio F., Conti M., Conti B.
Preliminary investigation on a new natural-based poly (gamma-glutamic acid)/Chitosan bioink.
Journal of Biomedical Materials Research Part B: Applied Biomaterials, 2020, 108.7: 2718-2732. DOI: 10.1002/jbm.b.34602.
Journal rank in 2020 (SJR): Q2 - Biomedical Engineering.
Journal IF in 2020: 3.2.
Role and contribution: Co-author.
Paper topic: This research investigates a new bioink based on poly (gamma-glutamic acid)/Chitosan for 3D bioprinting, focusing on its potential applications in tissue engineering.

11. Hajikhani A., **Scocozza F.**, Conti M., Marino M., Auricchio F., Wriggers P.
Experimental characterization and computational modeling of hydrogel cross-linking for bioprinting applications.
International Journal of Artificial Organs, 2019, 42.10: 548-557. DOI: 10.1177/0391398819856024.
Journal rank in 2019 (SJR)*:* Q3 - Biomedical Engineering.
Journal IF in 2019*:* 1.63.
Role and contribution: Co-author.
Paper topic*:* The study explores the characterization and computational modeling of hydrogel cross-linking for improving bioprinting applications in regenerative medicine.

12. Bari E*., Di Gravina G.M*., **Scocozza F.**, Perteghella S., Frongia B., Tengattini S., Segale L., Sorlini M., Torre M.L., Conti M.
Silk Fibroin Bioink for 3D Printing in Tissue Regeneration: Controlled Release of MSC Extracellular Vesicles.
Pharmaceutics, 2023, 15.2: 383. DOI: 10.3390/pharmaceutics15020383.
Journal Rank in 2023 (SJR): Q1 - Pharmacology and Pharmacy; Q1 - Pharmaceutical Science.
Journal IF in 2023: 5.4.
Role and contribution: Co-author.
Paper topic: This study explores the development of a silk fibroin-based bioink for 3D printing applications in tissue regeneration. The research focuses on the controlled release of mesenchymal stem cell (MSC) extracellular vesicles, highlighting potential therapeutic strategies for regenerative medicine.

13. Loi G., **Scocozza F.**, Aliberti F., Rinvenuto L., Cidonio G., Marchesi N., Benedetti L., Ceccarelli G., Conti M.
3D Co-Printing and Substrate Geometry Influence the Differentiation of C2C12 Skeletal Myoblasts.
Gels, 2023, 9.7: 595. DOI: 10.3390/gels9070595.
Journal rank in 2023 (SJR): Q2 - Biomedical Engineering
Journal IF in 2023: 4.6.

Role and contribution: Co-author.
Paper topic: This study investigates how 3D co-printing and substrate geometry affect the differentiation of C2C12 skeletal myoblasts. The authors found that linear structures promoted higher cell differentiation after 14 days in culture, suggesting potential applications in skeletal muscle tissue engineering.

14. Di Gravina G.M., Bari E., Croce S., **Scocozza F.**, Pisani S., Conti B., Avanzini M.L., Auricchio F., Cobianchi L., Torre M.L.
Design and development of a hepatic lyo-dECM powder as a biomimetic component for 3D-printable hybrid hydrogels.
Biomedical Materials, 2023, 19.1: 015005, DOI: 10.1088/1748-605X/ad0ee2.
Journal rank in 2023 (SJR): Q2 - Biomedical Engineering
Journal IF in 2024: 3.9
Role and contribution: Co-author.
Paper topic: This study focuses on the design and development of a hepatic lyo-dECM powder, which serves as a biomimetic component in 3D-printable hybrid hydrogels, offering potential applications in tissue engineering and regenerative medicine.

15. Loi G., Stucchi G., **Scocozza F.**, Cansolino L., Cadamuro F., Delgrosso E., Riva F., Ferrari C., Russo L., Conti M.
Characterization of a Bioink Combining Extracellular Matrix-Like Hydrogel with Osteosarcoma Cells: Preliminary Results.
Gels, 2023, 9.2: 129. DOI: 10.3390/gels9020129.
Journal rank in 2023 (SJR): Q2 - Bioengineering.
Journal IF in 2023: 4.9.
Role and contribution: Co-author.
Paper topic: This study investigates a bioink combining extracellular matrix-like hydrogel and osteosarcoma cells, assessing its potential for developing 3D tissue models for cancer research and therapy.

16. Fantini V., Bordoni M., **Scocozza F.**, Conti M., Scarian E., Carelli S., Di Giulio A.M., Marconi S., Pansarasa O., Auricchio F., Cereda C.
Bioink Composition and Printing Parameters for 3D Modeling Neural Tissue.
Cells, 2019, 8.8: 830. DOI: 10.3390/cells8080830.
Journal rank in 2019 (SJR): Q1 - Biochemistry.
Journal IF in 2019: 5.1.
Role and contribution: Co-author.
Paper topic: This study investigates bioink compositions and printing parameters for the 3D modeling of neural tissue, aiming to enhance the creation of neural tissue constructs for regenerative therapies.

17. Bari E., **Scocozza F.**, Perteghella S., Segale L., Sorlini M., Auricchio F., Conti M., Torre M.L.
Three-Dimensional Bioprinted Controlled Release Scaffold Containing Mesenchymal Stem/Stromal Lyosecretome for Bone Regeneration: Sterile Manufacturing and In Vitro Biological Efficacy.
Biomedicines, 2022, 10.5: 1063. DOI: 10.3390/biomedicines10051063.
Journal rank in 2022 (SJR): Q2 - Medicine (miscellaneous); Q2 - General Biochemistry, Genetics and Molecular Biology.
Journal IF in 2022: 3.9.
Role and contribution: Co-author.
Paper topic: This study presents the development of a 3D bioprinted scaffold incorporating mesenchymal stem/stromal lyosecretome, evaluating its potential for bone regeneration through sterile manufacturing and in vitro biological assessments.

18. Evangelista A., **Scocozza F.**, Conti M., Auricchio F., Conti B., Dorati R., Genta I., Benazzo M., Pisani S.
Exploring Mechanical Features of 3D Head and Neck Cancer Models.

Journal of Functional Biomaterials, 2025, 16.3: 74, DOI: 10.3390/jfb16030074.
Journal rank in 2024 (SJR): Q2 - Biomedical Engineering
Journal IF in 2023: 5
Role and contribution: Co-author and corresponding author.
Paper topic: This review investigates the mechanical properties of 3D models for head and neck cancer, aiming to enhance the understanding of cancer progression and facilitate the development of better therapeutic strategies.

*Authors equally contributed.

Book chapters

1. Conti M., Santesarti G., **Scocozza F.**, Marino M.
   Models and simulations as enabling technologies for bioprinting process design.
   In: Bioprinting. Academic Press, 2022, pp. 137-206.

1. Auricchio F., Conti M., Marconi S., Morganti S., **Scocozza F.**
   SMA cardiovascular applications and computer-based design.
   In: Shape Memory Alloy Engineering. Butterworth-Heinemann, 2021, pp. 659-685.

2. Conti M., Loi G., Marconi S., **Scocozza F.**
   Material testing and mechanical modeling in bioprinting.
   In: Biofabrication: an integrated bioengineering approach for the automated fabrication of biological structures for clinical and research applications. Pàtron Editore, 2021, pp. 95-116.

5. PATENTS

Scaffold for tissue regeneration, particularly for bone regeneration, and manufacturing method thereof. PCT patent pending application (n. PCT/IB2022/052098), EU and USA extension. **F. Scocozza** role: inventor. Date of Receipt: 09/03/2022.

6. PROJECTS AND COLLABORATIONS

6.1 Key Projects Participation

Project start date: pending — **Principal Investigator**
Project title: *BIOprinting a Predictable in-vitro Atherosclerosis Disease Platform to Study Hemodynamics and Develop Novel Therapeutic Strategies (BioPAD)*.
Funding agency: Giovani Ricercatori – Cariplo Foundation, Milan, Italy.
Duration: 2025-2028.
Overall funding: 185.428,00 euros.

2023 – Present — **Member of Engineering Unit**
Project title: *modellazione Digitale a suppOrto del pRogetto di AmbIenti sicuri, sosteNibili e resilienti (DORIAN)*.
Funding agency: Progetto Dipartimento di Eccellenza - Italian Ministry of University and Research.
Duration: 2023-2027.
Contribution: 3D biofabrication of the living sensor for agritech applications.

2022 – Present — **Member of Engineering Unit**
Project title: *Nord Ovest Digitale e Sostenibile (NODES)*.
Funding agency: PNRR - Italian Ministry of University and Research.
Duration: 2022-2026.
Contribution: Formulation of intelligent materials based on biopolymers enriched with a living component to fabricate sensors and/or purifiers from pollutants.

Member of Engineering Unit

2023 – Present
Nano-Electro-Chemo-Immuno Therapy (NECIT) to enhance head and neck cancer treatment.
Funding agency: Ricerca Corrente 2021 Project, IRCCS Policlinico S. Matteo, Pavia - Italian Ministry of Health.
Duration: 2023-2025.
Contribution: Design, fabrication, and assessment of the head and neck cancer 3D in-vitro model exploiting biofabrication techniques.

Member of Engineering Unit

2019 – 2023
Project title: *3D-printed Bioscaffolds for bone transplant*
Funding agency: Ricerca Corrente 2018, IRCCS Policlinico S. Matteo, Pavia - Italian Ministry of Health.
Duration: 2019-2023.
Contribution: 3D printing of bone scaffolds.

6.2 Research Collaborations

2017-ongoing
Senior member at the Bioprinting group of Pavia University (BioP@CompMech).

2021-ongoing
Prof. Marina Torre and Dr. Elia Bari, University of Piemonte Orientale, Novara, Italy.

2019-2022
Prof. Laura Russo, University of Milano-Bicocca, Milan, Italy (2022-ongoing).
Dr. Maurizio Pesce, IRCCS Mondino, Milan, Italy.

7. AWARDS

2023
GNB Ph.D. Award – Best Ph.D. Thesis, *Founded by the Institute of Biorobotics, Scuola Superiore Sant'Anna, for outstanding Ph.D. research in Bioengineering and related fields.*

2021
1st Prize, GNB School Competition, *XL Annual GNB School 2021 on "Biofabrication: an integrated bioengineering approach for the automated fabrication of biological structures for clinical and research applications".*

2020
1st Place – DATATHON Competition, *XXXIX Annual GNB School 2020 on "AI-enabled healthcare: from decision support to autonomous robots"*

8. CONFERENCES, PRESENTATIONS AND AFFILIATION TO SCIENTIFIC SOCIETIES

8.1 Conferences, Presentations

Jun 2025
Scocozza F., Delgrosso E., Conti M.
Biofabrication of vascular model: process optimization and preliminary assessment.
Accepted at the *Gruppo Nazionale di Bioingegneria (GNB) Conference*, Palermo, Italy.

Sept 2024
Scocozza F., Bari E., Perteghella S., Sorlini M., Auricchio F., Torre M. L., Conti M.
Three-Dimensional Bioprinted Controlled Release Scaffold Containing Mesenchymal Stem/Stromal Lyosecretome for Bone Regeneration.
Oral presentation at the *IV Congresso Nazionale IDBN – Italian Digital Biomanufacturing Network*, Florence, Italy.

Sep 2024
Scocozza F., Bari E., Perteghella S., Sorlini M., Auricchio F., Torre M. L., Conti M.
Design and assessment of a 3D bio-printed hybrid scaffold for bone tissue engineering.
Oral presentation at the *23rd International Conference on Mechanics in Medicine and Biology (ICMMB)*, Brussels, Belgium.

Apr 2023
Scocozza F., Savioli Lopes M., Conti M., Kuzmenko V.
FRESH method to bio-fabricate blood-like vessels for vascular tissue regeneration.

Oral presentation at the *European Symposium of Vascular Biomaterials*, Strasbourg, France.

Sep 2022 **Scocozza F.**, Savioli Lopes M., Conti M., Kuzmenko V., Namro Redwan I.
LifeSupport bath for bioprinting soft and liquid-like bioinks using the FRESH method.
Poster presentation at the *Biofabrication Conference*, Montecatini, Italy.

Sep 2022 **Scocozza F.**, Bari E., Perteghella S., Sorlini M., Auricchio F., Torre M. L., Conti M.
3D Bioprinted Scaffolds Containing Mesenchymal Stem Lyosecretome: Next Generation Controlled Release Device for Bone Regenerative Medicine.
Oral presentation at the *Biofabrication Conference*, Montecatini, Italy, September 2022.

Sep 2021 Bari E., **Scocozza F.**, Perteghella S., Sorlini M., Auricchio F., Torre M. L., Conti M.
3D Bioprinted Scaffolds Containing Mesenchymal Stem Lyosecretome: Next Generation Controlled Release Device for Bone Regenerative Medicine.
Online oral presentation at the *Biofabrication Conference*, Wollongong, Australia, September 2021.

Oct 2021 Bari E., **Scocozza F.**, Perteghella S., Sorlini M., Auricchio F., Torre M. L., Conti M.
3D Bioprinted Scaffolds Containing Mesenchymal Stem Lyosecretome: Next Generation Controlled Release Device for Bone Regenerative Medicine.
Oral presentation at the *StemNET Conference*, Padua, Italy, October 2021.

Sep 2020 **Scocozza F.**, Sakaj M., Auricchio F., Marconi S., Riello P., Scatto M., Conti M.
Geometrical features and sterility assessment of 3D printed PCL-HA scaffold
Oral presentation at the *NanoInnovation Conference*, Rome, Italy, September 2020.

8.2 Affiliation to Scientific Societies

- Member of *Gruppo Nazionale Bioingegneria (GNB)*.
- Member of the *Italian Digital Biomanufacturing Network (IDBN).*
- Member of the *International Society of Biofabrication (ISBF)*.

9. ORGANIZATION OF SCHOOLS/WORKSHOP/SYMPOSIUM

Feb. 2024 **Member of the Organizing Committee**
Bioprinting Winter School: From Printing Set-Up to Laboratory Analysis and Biomechanics (website link).
University of Pavia, Pavia, Italy.
Contribution: I contributed to designing the scientific program, handled logistics (location, accommodation, and transportation), and created promotional materials.

Sep 2022 **Organizer**
Mini-symposium on *Computational Models as Enabling Technologies for (Bio)Printing Design and Tissue Engineering Applications*
GIMC-SIMAI YOUNG 2022 Workshop, Pavia, Italy.
Contribution: I contributed to designing the scientific program, as well as the selection and invitation of speakers.
8 speakers.

Feb 20222 **Member of the Organizing Committee and Tutor**
Bioprinting Winter School: From Printing Set-Up to Laboratory Analysis and Biomechanics (website link)
University of Pavia, Pavia, Italy.
Contribution: I contributed to designing the scientific program, handled logistics (location, accommodation, and transportation), and created promotional materials. I also facilitated networking opportunities and provided support to participants throughout the event. Additionally, I was one of the tutors during the hands-on sessions.

Feb 2020 **Member of the Organizing Committee**
Bioprinting Winter School: From Printing Set-Up to Laboratory Analysis and Biomechanics (website link)
University of Pavia, Pavia, Italy.
Contribution: I contributed to designing the scientific program, handled logistics (location, accommodation, and transportation), and created promotional materials. I also facilitated networking opportunities and provided support to participants throughout the event.

10. TECHNICAL SKILLS

Software & Programming

- Finite Element Analysis: Abaqus, COMSOL
- Programming: Matlab, LabVIEW, Python
- CAD Tools: SolidWorks, Autodesk Inventor, FreeCAD
- 3D Printing: Slic3r, Cura
- Others: LaTeX

Soft skills

- Project and team management, especially in academic and startup settings
- Strong communication skills in interdisciplinary and international environments
- Hands-on bioprinting, hydrogel formulation, and in-vitro model development

In accordance with Regulation (EU) 2016/679 (GDPR), I consent to the processing of my personal data for the purposes of recruitment and selection.

Pavia, 15/04/2025