

Dr. MARIO MILAZZO

Senior Assistant Professor (RTDb)

Department of Civil and Industrial Engineering, University of Pisa

Largo Lucio Lazzarino 2, 56126, Pisa, Italy

 // mario.milazzo@unipi.it

https://people.unipi.it/mario_milazzo/



OrcidID:



Scopus ID:



Scholar ID:



WOS ID:



CURRENT APPOINTMENTS

- **Tenure-Track Assistant Professor (RTDb)** in Materials Science and Engineering (Italian Division 09/D1 – ING-IND/22) at University of Pisa 2022 -
- **Fullbright Grantee** at Seton Hall University (South Orange, NJ, USA) 2024 -
- **Member of the Committee for the Ph.D. Program in Industrial Engineering**
– Sections: Chemical Engineering and Materials Science & Engineering / Mechanical Engineering at University of Pisa 2022 -
- **Research Affiliate** at The BioRobotics Institute of Scuola Superiore Sant'Anna (Pisa, Italy) 2012 -

EDUCATION

- **National Habilitation as Associate Professor in Materials Science and Engineering (Italian Division 09/D1 – ING-IND/22)** 2023
- **Ph.D. in BioRobotics.** Doctoral Thesis: “*Bioengineering approaches for micro-prosthetics*”. Grade: 100/100 with honors. University: The BioRobotics Institute - Scuola Superiore Sant'Anna, Pisa, Italy. Thesis Director: Prof. Cesare Stefanini, Ph.D. Tutor: Prof. Serena Danti, Ph.D. 2013 - 2016
- **National Habilitation as Senior Engineer** 2011
- **MS in Mechanical Engineering.** MS Thesis: “*Thermo-mechanical design of a dryer for woody biomass (Progetto termomeccanico di un essiccatore di biomassa legnosa)*”. Grade: 110/110 with honors. University of Pisa, Pisa, Italy. Thesis Director: Prof. Roberto Gabbrielli, Ph.D. Tutors: Prof. Paolo di Marco, Ph.D - Prof. Stefano Frigo, Ph.D. 2008 - 2010
- **National Habilitation as Junior Engineer** 2009
- **BS in Mechanical Engineering.** BS Thesis: “*Functional design of a vertical-axis eolic generator (Progetto funzionale di un generatore eolico ad asse verticale)*”. Grade: 110/110 with honors. University of Pisa, Pisa, Italy. Thesis Director: Prof. Marco Beghini, Ph.D. Tutor: Fabio Presicce, MS 2005 - 2008

PAST APPOINTMENTS

2016 – 2022

Post-Doctoral Fellow

Institution: The BioRobotics Institute, Scuola Superiore Sant'Anna

Supervisor: Prof. Cesare Stefanini

Field: Bioengineering/Robotics

2018 – 2021:

COLLHEAR Project: 3D printed COLLAGen type I-Hydroxyapatite prostheses for the middle EAR (Grant Agreement: 794614)

Institutions: Scuola Superiore Sant'Anna, Massachusetts Institute of Technology, University of Antwerp, University of Pisa, Massachusetts Eye and Ear, Tufts University, Columbia University

Role: Marie Skłodowska-Curie Post-Doc Fellow – Coordinator

Involved Faculty Members: Prof. Cesare Stefanini, Prof. Markus J. Buehler, Dr. Serena Danti, Prof. Joris J. Dirckx, Prof. Sunil Puria, Prof. David Kaplan, Prof. Elizabeth S. Olson (Project Advisor)

Fields: Materials Science and Engineering/Bioengineering

2017 – 2019

MIT-UNIFI Project: Nanocomposite Piezoelectric Materials for Cochlear Sensory-Neural Stimulation

Institutions: Massachusetts Institute of Technology and University of Pisa

Role: Visiting Post-Doc Researcher

Supervisor: Prof. Markus J. Buehler, Dr. Serena Danti

Fields: Bioengineering/Materials Science and Engineering

2016 - 2016

Visiting Ph.D. Student

Institution: Columbia University

Supervisor: Prof. Elizabeth S. Olson

Fields: Bioengineering/Mechanics of Acoustics

2012 - 2013

Research Assistant

Institution: The BioRobotics Institute, Scuola Superiore Sant'Anna, Pisa, Italy.

Supervisor: Prof. Cesare Stefanini

Field: Bioengineering/Robotics

AWARDS

- Fulbright Grantee for Research and Lectures at Seton Hall University (USA) 2024
- Article of the Year Award for the Applied Bionics and Biomechanics journal 2021
- Marie Skłodowska-Curie Individual Fellowships (MSCA-IF-GF) 2018
- ARO Graduate Student Travel Award, ARO - 40th Annual MidWinter Meeting
Feb. 11 - 15, 2017. Baltimore (MD), USA 2017

FUNDING

- MISTI – MIT/UNIFI - "MAGIC: "sMall-caliber vAscular Grafts in pulsed-flow microfluidics". Funding: MISTI – MIT/UNIFI Seed Funds. Budget raised: \$22,880. Role: Principal Investigator 2023 - 2024
- University of Pisa Funds - "Smart Endotracheal Tubes to improve anesthesiology practices - (SETHI)". Funding Agency: University of Pisa. Role: Principal Investigator. Budget raised: € 31,619.50 2022 - 2024
- Horizon 2020 - Marie Skłodowska-Curie Individual Fellowships (MSCA-IF-GF), COLLHEAR: 3D printed COLLAGen type I-Hydroxyapatite prostheses for the middle EAR. Grant Agreement: 794614. Budget raised: €224,300.00. Role: Project coordinator. 2018 - 2021
- Joint projects with industrial collaborators. Role: Co-writer of proposals and Team Leader. Budget raised: €662,350 2013 - 2016
- PhD Fellowship at Scuola Superiore Sant'Anna. Role: Writer of the proposal. Budget raised: €45,000 2013 - 2016

TEACHING & MENTORING

- "Manufacturing of Polymers and Nanocomposites for Biomedical Application" ", 3 CFU, University of Pisa, Pisa, Italy. Class: ~20 pp. Role: Co-Lecturer. Role: Teacher and Examiner. 2023 -
- "Fabrication and characterization of biomaterials for regenerative medicine applications", Instituto Superior de Engenharia do Porto – ISEP, Porto, Portugal in the framework of Erasmus+ Mobility Program. Class: ~40 pp. Role: Teacher. 2023 - 2023
- "Materials Science and Applied Chemistry", 6 CFU, University of Pisa, Pisa, Italy. Class: ~70 pp. Role: Course responsible, Teacher, Examiner. 2022 -
- "Fundamentals of Materials Science and Engineering", 6 CFU, University of Pisa, Pisa, Italy. Class: ~10 pp. Role: Course responsible, Teacher, Examiner. 2021 -
- "Kaufman Teaching Certificate Program", May – June, 2019. Instructor: Dr. Lourdes Aleman. Massachusetts Institute of Technology, Cambridge (MA), USA. Role: Attendee. 2019 -2019
- "Biomedical technologies", 3 CFU, University of Pisa, Pisa, Italy. Class: ~20 pp. Role: Teacher, Examiner. 2016 - 2018
- "Mechanical design principles for biomedical machines", 6 CFU, , University of Pisa, Pisa, Italy. Class: ~20 pp. Role: Teacher, Examiner. 2013 - 2018
- "Creative Engineering Design-Inventing in engineering" & "Sustainability in product engineering" Master "Digital Life & Smart Living" 3rd ed., Scuola Superiore Sant'Anna, Pisa, Italy. Class: ~20 pp. Role: Course responsible, Teacher, Examiner. 2016 -2016
- Mentoring ~20 Undergraduate and Graduate students (details are at the end of the CV). 2014 -
- Expert for the Scientific Area (SSD) ING-IND/34 - Bioengineering. Institution: University of Pisa, Italy. Role: Teacher, Examiner. 2014 - 2020
- "Biomedical technologies", 3 CFU, University of Pisa, Pisa, Italy. Class: ~120 pp. Role: Role: Teacher, Examiner. 2013 - 2015

PAPERS ON PEER-REVIEWED SCIENTIFIC JOURNALS

(* These authors contributed equally. § Corresponding author.)

- 61 Mota, C., **Milazzo, M.**, Dharmarajan, A., D'Alessandro, D., Panetta, D., Trombi, L., Ricci, C., Moscato, S., Salvatori, P. A., Petrini, M., Puria, S., Moroni, L., Berrettini, S., & Danti, S. (2024) Real size ossicular scaffolds by 3D fiber deposition for personalized treatment of conductive hearing loss. *Nature Materials*. *Submitted*
- 60 Tramonti Fantozzi, M.P., Crivello, A., La Rosa, D., **Milazzo, M.** §, Danti, S., De Cicco, V., Orsini, P., Manzoni, D., Lazzerini, F., Canelli, R., Fiacchini, G., & Bruschini, L.. (2024) Can pupil dilation response to sound be used as a reliable alternative to standard audiometric tests? *Computer in Biology and Medicine*. *Under Review*
- 59 Sessini, V., Latty, H., Mirkhalaf, M., **Milazzo, M.**, & Lo Re, G. (2024) Reactive extrusion for strong pulp fibres/starch biocomposites: experiments vs computational modelling to highlight the relevance of the interphase in the mechanism of reinforcement. *Composites Science and Technology*. *Submitted*
- 58 **Milazzo, M.**§, Danti, S., Livens, P., Dirckx, J., Scaffaro, R., & Gammino, M. (2024). Electrospun graphene oxide/polymeric nanocomposites for eardrum replacements. *Composites Communications*, 51, 102048. doi: 10.1016/j.coco.2024.102048
- 57 Zavagna, L.* , Canelli, E.* , Azimi, B., Troisi, F., Scarpelli, L., Macchi, T., Gallone, G., Labardi, M., Giovannoni, R., **Milazzo M.**, & Danti, S. (2024) Electrospun Fiber-Based Tubular Structures as 3D Scaffolds to Generate In Vitro Models for Small Intestine. *Macromolecular Materials and Engineering*, 2400123. doi: 10.1002/mame.202400123
- 56 Favrin, F., Zavagna, L., Sestini, M., Esin, S., **Milazzo, M.**, Gallone, G., Batoni, G., & Danti, S. (2023). Antifouling properties of electrospun polymeric coatings induced by controlled surface morphology. *Energy & Environmental Materials*, e12773. doi: 10.1002/eem2.12773
- 55 La Rosa, D., Bruschini, L., Tramonti Fantozzi, M. P., Orsini, P., **Milazzo, M.**§, & Crivello, A. (2024). Pupil Data Upon Stimulation by Auditory Stimuli. *Data*, 9(3), 43. doi: 10.3390/data9030043
- 54 Strangis, G., Labardi, M., Gallone, G., **Milazzo, M.**, Capaccioli, S., Forli, F., Cinelli, P., Berrettini, S., Seggiani, M., Danti, S., & Parchi, P. (2024) 3D Printed Piezoelectric BaTiO₃/Polyhydroxybutyrate Nanocomposite Scaffolds for Bone Tissue Engineering. *Bioengineering*, 11(2), 193. doi: 10.3390/bioengineering11020193
- 53 Rovelli, R., Cecchini, B., Zavagna, L., Azimi, B., Ricci, C., Esin, S., **Milazzo, M.**§, & Danti, S. (2024). Emerging Multiscale Biofabrication Approaches for Bacteriotherapy. *Molecules*, 29(2), 533. doi: 10.3390/molecules29020533
- 52 Cecchini, B., Rovelli, R., Zavagna, L., Azimi, B., Macchi, T., Kaya, E., Bruschini, L., **Milazzo, M.**§, Batoni, G., & Danti, S. (2023). Alginate-Based Patch for Middle Ear Delivery of Probiotics: A Preliminary Study Using Electrospray and Electrospinning. *Applied Sciences*, 13(23), 12750. doi: 10.3390/app132312750
- 51 Ricci, C., Azimi, B., Panariello, L., Antognoli, B., Cecchini, B., Rovelli, R., Rustembek, M., Cinelli, P., **Milazzo, M.**, Danti, S., & Lazzeri, A. (2023). Assessment of Electrospun Poly (ε-caprolactone) and Poly (lactic acid) Fiber Scaffolds to Generate 3D In Vitro Models of Colorectal Adenocarcinoma: A Preliminary Study. *International Journal of Molecular Sciences*, 24(11), 9443. doi: 10.3390/ijms24119443
- 50 Liu, D., Feng, S., Huang, Q., Sun, S., Dong, G., Long, F., **Milazzo, M.**, & Wang, M. (2023). Soft, Strong, Tough, and Durable Bio-Hydrogels Via Maximizing Elastic Entropy. *Advanced Functional Materials*, 2300426. doi: 10.1002/adfm.202300426
- 49 **Milazzo, M.***, Fitzpatrick, V.* , Owens, C. E.* , Carraretto, I. M., McKinley, G., Kaplan, D. L., & Buehler, M. J. (2023). 3D Printability of Silk/Hydroxyapatite Composites for Microprosthetic

- Applications. *ACS Biomaterials Science & Engineering*, 9(3), 1285-1295. doi: 10.1021/acsbomaterials.2c01357
- 48 Mallegni, N.*, **Milazzo M.***, Cristallini, C., Barbani, N., Fredi, G., Dorigato, A., Cinelli, P., & Danti, S. (2023). Characterization of Cyclic Olefin Copolymers for Insulin Reservoir in an Artificial Pancreas. *Journal of Functional Biomaterials*, 14(3), 145. doi: 10.3390/jfb14030145
- 47 Mallegni, N., Molinari, G., Ricci, C., Lazzeri, A., La Rosa, D., Crivello, A., & **Milazzo, M.** (2022). Sensing Devices for Detecting and Processing Acoustic Signals in Healthcare. *Biosensors*, 12(10), 835. doi: 10.3390/bios12100835
- 46 Khare, E.*, Yu, C.-H.*, Gonzales Obeso, C.*, **Milazzo, M.**, Kaplan, D. L., & Buehler, M. J. (2022). Discovering design principles of collagen molecular stability using a genetic algorithm, deep learning, and experimental validation. *Proceedings of the National Academy of Sciences*, 119(40), e2209524119. doi: 10.1073/pnas.2209524119
- 45 Libonati, F.*, **Milazzo, M.***, & Ruffoni, D.* (2022). Editorial: Design and Fabrication Tools for Advanced Materials: Applications in Biomechanics and Mechanobiology. *Frontiers in Materials*, 380. doi: 10.3389/fmats.2022.945532
- 44 Chiurazzi, M.*, Czimmermann, T.*, **Milazzo, M.**, Roccella, S., Ciuti, G., Dario, P., & Oddo, C. M. (2022). Autonomous robotic system for manufacturing defect identification and correction. *IEEE Transactions on Automation Science and Engineering*, 19(3), 1691-1706. doi: 10.1109/TASE.2021.3122820
- 43 **Milazzo, M.**, & Libonati, F. (2022). The synergistic role of additive manufacturing and artificial intelligence for the design of new advanced intelligent systems. *Advanced Intelligent Systems*, 4(6), 2100278. doi:10.1002/aisy.202100278
- 42 Azimi, B., Maleki, H., Gigante, V., Bagherzadeh, R., Mezzetta, A., **Milazzo, M.**, Guazzelli, L., Cinelli, P., Lazzeri, A., & Danti, S. (2022). Cellulose-based fiber spinning processes using ionic liquids. *Cellulose*, 1-51. doi: 10.1007/s10570-022-04473-1
- 41 Buehler, M., & **Milazzo, M.** (2022). A matter of sound. *Physics World*, 35(1), 35. doi: 10.1088/2058-7058/35/01/32
- 40 Crivello, A.*, **Milazzo M.***, La Rosa, D., Fiacchini, G., Danti, S., Guarracino, F., & Bruschini, L. (2022). Experimental Assessment of Cuff Pressures on the Walls of a Trachea-Like Model Using Force Sensing Resistors: Insights for Patient Management in Intensive Care Unit Settings. *Sensors*, 22(2), 697. doi: 10.3390/s22020697
- 39 Cascarano, S.*, **Milazzo, M.***, Vannini, A., Spezzaneve, A., & Roccella, S. (2021). Design of a Drone to autonomously Interact with Objects in Unstructured Outdoor Scenarios. *Field Robotics*, 1, 127-157. doi: 10.55417/fr.2021005
- 38 **Milazzo, M.***, Spezzaneve, A.*, Astrea, G., Giorgolo, F., Tonacci, A., Sansone, F., & Santorelli, S. R. A., Astrea, G., Giorgolo, F., Tonacci, A., Sansone, F., Calderisi, M., the Ingene Group, Santorelli, F., & Roccella, S. (2021). AUTOMA: a wearable device to assess the upper limb muscular activity in patients with neuromuscular disorders. *Acta Myologica*, 40(4), 143. doi: 10.36185/2532-1900-057
- 37 **Milazzo, M.**, Anderson, G. I., & Buehler, M. J. (2021). Bioinspired translation of classical music into de novo protein structures using deep learning and molecular modeling. *Bioinspiration & biomimetics*, 17(1), 015001. doi: 10.1088/1748-3190/ac338a
- 36 D'Alessandro, D., Ricci, C., **Milazzo, M.**, Strangis, G., Forli, F., Buda, G., Petrini, M., Berrettini, S., Uddin, M. J., Danti, S., & Parchi, P. (2021). Piezoelectric Signals in Vascularized Bone Regeneration. *Biomolecules*, 11(11), 1731. doi: 10.3390/biom11111731
- 35 Miraglia, M., Tannous, M., Inglese, F., Brämer, B., **Milazzo, M.**, & Stefanini, C. (2022). Energy recovery from shock absorbers through a novel compact electro-hydraulic system architecture. *Mechatronics*, 81, 102701. doi: 10.1016/j.mechatronics.2021.102701

- 34 Azimi, B.*, **Milazzo, M.***, & Danti, S. (2021). Cellulose-based fibrous materials from bacteria to repair tympanic membrane perforations. *Frontiers in Bioengineering and Biotechnology*, 9, 474. doi: 10.3389/fbioe.2021.669863
- 33 Digiacomo, F., Bologna, F., Inglese, F., Stefanini, C., & **Milazzo, M.** (2021). MechaTag: A Mechanical Fiducial Marker and the Detection Algorithm. *Journal of Intelligent & Robotic Systems*, 103(3), 1-11. doi: 10.1007/s10846-021-01507-x
- 32 Afroz, A. S., Inglese, F., Stefanini, C., & **Milazzo, M.** (2021). STL_Process: A STL-based preprocessor for robot path planning in manufacturing and quality control processes. *SoftwareX*, 15, 100725. doi: 10.1016/j.softx.2021.100725
- 31 Danti, S., Anand, S., Azimi, B., **Milazzo, M.**, Fusco, A., Ricci, C., Zavagna, L., Linari, S., Donnarumma, G., Lazzeri, A., Moroni, L., Mota, C., & Berrettini, S. (2021). Chitin Nanofibril Application in Tympanic Membrane Scaffolds to Modulate Inflammatory and Immune Response. *Pharmaceutics*, 13(9), 1440. doi: 10.3390/pharmaceutics13091440
- 30 **Milazzo, M.**, & Buehler, M. J. (2021). Designing and fabricating materials from fire using sonification and deep learning. *iScience*, 24(8), 102873. doi: 10.1016/j.isci.2021.102873
- 29 **Milazzo, M.**, David, A., Jung, G. S., Danti, S., & Buehler, M. J. (2021). Molecular origin of viscoelasticity in mineralized collagen fibrils. *Biomaterials Science*, 9(9), 3390-3400. doi: 10.1039/D0BM02003F
- 28 Franjou, S. L.*, **Milazzo, M.***, Yu, C. H.*, & Buehler, M. J. (2021). A perspective on musical representations of folded protein nanostructures. *Nano Futures*, 5(1), 012501. doi: 10.1088/2399-1984/abcf1b
- 27 Morouço, P., Azimi, B.*, **Milazzo, M.***, Mokhtari, F., Fernandes, C., Reis, D., & Danti, S. (2020). Four-Dimensional (Bio-) printing: A Review on Stimuli-Responsive Mechanisms and Their Biomedical Suitability. *Applied Sciences*, 10(24), 9143. doi: 10.3390/app10249143
- 26 **Milazzo, M.**, Gallone, G., Marcello, E., Mariniello, M. D., Bruschini, L., Roy, I., & Danti, S. (2020). Biodegradable Polymeric Micro/Nano-Structures with Intrinsic Antifouling/Antimicrobial Properties: Relevance in Damaged Skin and Other Biomedical Applications. *Journal of Functional Biomaterials*, 11(3), 60. doi: 10.3390/jfb11030060
- 25 **Milazzo, M.***, Spezzaneve*, A., Persichetti, A., Tomasi, M., Peselli, V., Messina, A., Gambineri, F., Aringhieri, G., & Roccella, S. (2020). Digital and experimental synergies to design high-heeled shoes. *The International Journal of Advanced Manufacturing Technology*, 109(1), 385-395. doi: 10.1007/s00170-020-05675-2
- 24 **Milazzo, M.**, Jung, G. S., Danti, S., & Buehler, M. J. (2020). Mechanics of Mineralized Collagen Fibrils upon Transient Loads. *ACS nano*, 14(7), 8307-8316. doi: 10.1021/acsnano.0c02180
- 23 Afroz, A. S., Digiacomo, F., Pelliccia, R., Inglese, F., Stefanini, C., & **Milazzo, M.** (2020). Optimization of a wearable speed monitoring device for welding applications. *The International Journal of Advanced Manufacturing Technology*, 110(5), 1285-1293. doi: 10.1007/s00170-020-05945-z
- 22 Digiacomo, F., Afroz, A. S., Pelliccia, R., Inglese, F., **Milazzo, M.**, & Stefanini, C. (2020). Head-mounted Standalone Real-time Tracking System for moving light-emitting targets fusing vision and inertial sensors. *IEEE Transactions on Instrumentation and Measurement*, 69(11), 8953-8961. doi: 10.1109/TIM.2020.2995233
- 21 Danti, S., Azimi, B., Candito, M., Fusco, A., Sorayani Bafqi, M. S., Ricci, C., **Milazzo, M.**, Cristallini, C., Latifi, M., Donnarumma, G., Bruschini, L., Lazzeri, A., Astolfi, L., & Berrettini, S. (2020). Lithium niobate nanoparticles as biofunctional interface material for inner ear devices. *Biointerphases*, 15(3), 031004. doi:10.1116/6.0000067
- 20 Moscato, S., Rocca, A., D'Alessandro, D., Puppi, D., Gramigna, V., **Milazzo, M.**, Stefanini, C., Chiellini, F., Petrini, M., Berrettini, S., & Danti, S. (2020). Tympanic membrane collagen

- expression by dynamically cultured human mesenchymal stromal cell/star-branched poly(ϵ -caprolactone) nonwoven constructs. *Applied Sciences*, 10(9), 3043. doi:10.3390/app10093043
- Mo, X., Romano, D., **Milazzo, M.**, Benelli, G., Ge, W., & Stefanini, C. (2020). Impact of Different Developmental Instars on *Locusta migratoria* Jumping Performance. *Applied Bionics and Biomechanics*, 2020, 1–11. doi:10.1155/2020/2797486
- 19 Czimmerman, T., Ciuti, G., **Milazzo, M.**, Chiurazzi, M., Roccella, S., Oddo, C. M., & Dario, P. (2020). Visual-based Defect Detection and Classification Approaches for Industrial Applications - A SURVEY. *Sensors*, 20(5), 1459. doi:10.3390/s20051459
- 18 Tannous, M., Miraglia, M., Inglese, F., Giorgini, L., Ricciardi, F., Pelliccia, R., **Milazzo, M.**, & Stefanini, C. (2020). Haptic-based touch detection for collaborative robots in welding applications. *Robotics and Computer-Integrated Manufacturing*, 64, 101952. doi:10.1016/j.rcim.2020.101952
- 17 **Milazzo, M.**, Jung, G. S., Danti, S., & Buehler, M. J. (2020). Wave propagation and energy dissipation in collagen molecules. *ACS Biomaterials Science & Engineering*, 6(3), 1367-1374. doi:10.1021/acsbiomaterials.9b01742
- 16 Franjou, S. L.*, **Milazzo, M.***, Yu, C. H.*, & Buehler, M. J. (2019). Sounds interesting: can sonification help us design new proteins? *Expert Review of Proteomics*, 16(11-12), 875–879. doi:10.1080/14789450.2019.1697236
- 15 **Milazzo, M.***, Moretti, G.*, Burchianti, A., Mazzini, D., Oddo, C. M., Stefanini, C., & Fontana, M. (2019). A passively regulated full-toroidal continuously variable transmission. *Meccanica*, 55(1), 211–226. doi:10.1007/s11012-019-01096-y
- 14 **Milazzo, M.**, Muyschondt, P. G., Carstensen, J., Dirckx, J. J., Danti, S., & Buehler, M. J. (2019). De novo topology optimization of total ossicular replacement prostheses. *Journal of the Mechanical Behavior of Biomedical Materials*, 103541. doi:10.1016/j.jmbbm.2019.103541
- 13 Azimi, B., **Milazzo, M.**, Lazzeri, A., Berrettini, S., Uddin, M. J., Qin, Z., Buehler, M.J., & Danti, S. (2019). Electrospinning Piezoelectric Fibers for Biocompatible Devices. *Advanced Healthcare Materials*, 9(1), 1901287. doi:10.1002/adhm.201901287
- 12 **Milazzo, M.**, Panepinto, A., Sabatini, A. M., & Danti, S. (2019). Tongue Rehabilitation Device for Dysphagic Patients. *Sensors*, 19(21), 4657. doi: 10.3390/s19214657
- 11 **Milazzo, M.***, Contessi Negrini, N.*, Scialla, S., Marelli, B., Farè, S., Danti, S., & Buehler, M. J. (2019). Additive Manufacturing Approaches for Hydroxyapatite-Reinforced Composites. *Advanced Functional Materials*, 29(35), 1903055. doi:10.1002/adfm.201903055
- 10 Rongala, U. B., Mazzoni, A., Chiurazzi, M., Camboni, D., **Milazzo, M.**, Massari, L., Ciuti, G., Dario, P., & Oddo, C. M. (2019). Tactile Decoding of Edge Orientation with Artificial Cuneate Neurons in Dynamic Conditions. *Frontiers in Neurobotics*, 13, 44. doi: 10.3389/fnbot.2019.00044
- 9 Mota, C., **Milazzo, M.**, Panetta, D., Trombi, L., Gramigna, V., Salvadori, P. A., Giannotti, S., Bruschini, L., Stefanini, C., Moroni, L., & Berrettini, S. (2018). 3D fiber deposited polymeric scaffolds for external auditory canal wall. *Journal of Materials Science: Materials in Medicine*, 29(5), 63. doi:10.1007/s10856-018-6071-3
- 8 **Milazzo, M.**, Fallah, E., Carapezza, M., Kumar, N. S., Lei, J. H., & Olson, E. S. (2017). The path of a click stimulus from ear canal to umbo. *Hearing research*, 346, 1-13. doi:10.1016/j.heares.2017.01.007
- 7 **Milazzo, M.**, Danti, S., Inglese F., Jansen van Vuuren, G., Gramigna, V., Bonsignori, G., De Vito, A., Bruschini, L., Stefanini, C., & Berrettini, S. (2017) Ossicular replacement prostheses from banked bone with ergonomic and functional geometry. *Journal of Biomedical Materials Research Part B: Applied Biomaterials*, 105(8), 2495-2506. doi:10.1002/jbm.b.33790
- 6

- 5 Ramacciotti, M., **Milazzo, M.**, Leoni, F., Roccella, S., & Stefanini, C. (2016). A novel shared control algorithm for industrial robots. *International Journal of Advanced Robotic Systems*, 13(6), 1729881416682701. doi:10.1177/1729881416682701
- 4 D'Alessandro, D., Perale, G., **Milazzo, M.**, Moscato, S., Stefanini, C., Pertici, G., & Danti, S. (2017). Bovine bone matrix/poly (L-lactic-co-ε-caprolactone)/gelatin hybrid scaffold (SmartBone®) for maxillary sinus augmentation: A histologic study on bone regeneration. *International journal of pharmaceutics*, 523(2), 534-544. *International Journal of Pharmaceutics*, Oct. 2016. doi:10.1016/j.ijpharm.2016.10.036
- 3 Ricci, C., Trombi, L., Soriga, I., Piredda, F., **Milazzo, M.**, Stefanini, C., Bruschini, L., Perale, G., Pertici, G., & Danti, S. (2016). Investigating the microenvironmental effects of scaffold chemistry and topology in human mesenchymal stromal cell/polymeric hollow microfiber constructs. *Biomedical Science and Engineering*. doi:10.4081/bse.2016.10
- 2 Mota, C., Danti, S., D' Alessandro, D., Trombi, L., Ricci, C., Puppi, D., Dinucci, D., **Milazzo, M.**, Stefanini, C., Chiellini, F., Moroni, L., & Berrettini, S. (2015). Multiscale fabrication of biomimetic scaffolds for tympanic membrane tissue engineering. *Biofabrication*, 7(2), 025005. doi: 10.1088/1758-5090/7/2/025005
- 1 Calì, R., Rongala, U., Camboni, D., **Milazzo, M.**, Stefanini, C., De Petris, G., & Oddo, C. (2014). Piezoelectric energy harvesting solutions. *Sensors*, 14(3), 4755-4790. doi:10.3390/s140304755

INDEXED PEER-REVIEWED ABSTRACTS

- 7 **Milazzo, M.**, Yu, C. H., Fitzpatrick, V., Stefanini, C., Danti, S., Kaplan, D. L., & Buehler, M. J. (2022). Optimization Of 3d Printing Nozzles For Bioengineering Applications Via Computational Modeling And Deep Learning. *Tissue Engineering, Part A*, 28, S173-S174.
- 6 Azimi, B., Zavagna, L., Ricci, C., Fusco, A., **Milazzo, M.**, Anand, S., Donnarumma, G., Mota, C., & Danti, S. (2022). Tympanic Membrane Scaffolds Aided by Chitin Nanofibrils to Modulate Inflammatory and Immune Response. *Tissue Engineering, Part A*, 28, S651-S652.
- 5 Azimi, B., Feula, M., **Milazzo, M.**, Ahluwalia, A., Berrettini, S., & Danti, S. (2022). Polyvinyl Alcohol/Gelatin Sponges for Auricular Cartilage Engineering. *Tissue Engineering, Part A*, 28(Supplement 1), S420-S421.
- 4 **Milazzo, M.**, Mota, C., Berrettini, S., Dharmarajan, A., Puria, S., Moroni, L., & Danti, S. (2022). Tissue Engineered 3D Fiber-Deposited Scaffolds for Ossicular Chain Replacement Prosthesis. *Tissue Engineering, Part A*, 28(Supplement 1), S314-S315.
- 3 **Milazzo, M.**, Danti, S., Inglese, F., Berrettini, S., & Stefanini, C. (2018). Micro-machining of bovine bone for otologic applications. In *European Society for Precision Engineering and Nanotechnology, Conference Proceedings–18th International Conference and Exhibition, EUSPEN 2018*; Billington, D., Leach, R. K., Phillips, D., Riemer, O., Savio, E., Ed.s; EUSPEN 2018 (pp. 375–376).
- 2 **Milazzo, M.**, D'Alessandro, D., Danti, S., Stefanini, C., Pertici, G., & Perale, G. (2016). Bone matrix/copolymer/gelatin scaffold (SmartBone®) as a biomimetic graft for sinus lift procedure in dental surgery. *Frontiers in Bioengineering and Biotechnology*, 4. doi:10.3389/conf.fbioe.2016.01.02306
- 1 Danti, S., Stoppe, T., Mota, C., Trombi, L., **Milazzo, M.**, De Vito, A., & Berrettini, S. (2016). Engineering advanced middle ear tissues: where biomimicry of vibrating surfaces connects to optimal organ function. *Frontiers in Bioengineering and Biotechnology*, 4. doi:10.3389/conf.fbioe.2016.01.01977

PARTICIPATION TO EDITORIAL ACTIVITIES

- Associate Editor for the “Frontiers in Materials” journal – Sections: “Computational Materials Science” and “Polymeric and Composite Materials”.
- Associate Editor della Rivista “Computation”, MDPI
- Associate Editor for the “Plos One” journal.
- Associate Editor for the “IEEE Transactions on Medical Robotics and Bionics” journal.
- Topical Advisory Panel Member for “Polymers”, MDPI
- Co-Guest Editor for the Research Topic: "Advances in Machine Learning and Artificial Intelligence in Biomaterials", Frontiers in Bioengineering and Biotechnology, Frontiers.
- Co-Guest Editor for the Research Topic: "Design and fabrication tools for advanced materials: applications in biomechanics and mechanobiology", Frontiers in Materials, Frontiers.
- Co-Guest Editor for the Special Issue: "New Frontiers for Bioactive Biomedical Polymers", Polymers, MDPI.

PARTICIPATION TO CONFERENCES

- 59** **Milazzo, M.**, Rossi, D., Ricci, C., Zavagna, L., Labardi, M., & Danti, S. (2024). Design, Fabrication, and Characterization of Piezoelectric and Dielectric Materials for Tubular Electrospun Grafts. 2024 MRS Fall Meeting & Exhibit, Dec. 1 – 6, 2024. Boston (MA), USA. *Oral*
- 58** **Milazzo, M.** (2024). Creative Engineering Design for Industrial-driven research initiatives: lessons learned and opportunities for fruitful collaborations. IEEE/RSJ International Conference on Intelligent Robots and Systems. Oct 14 – 18, 2024. Abu Dhabi, UAE. *Invited Speaker*
- 57** Aprile, V., Bacchin, D., Lenzini, A., Mastromarino, M. G., Korasidis, S., Ribechini, A., **Milazzo, M.**, Ambroggi, M.C., & Lucchi, M. (2024). Assessment of Quality of Life After Tracheal Surgery for Benign Stenosis. The 38th EACTS Annual Meeting, Oct. 9-12. Lisbon, Portugal. *Poster*
- 56** Sestini, M., Matungano, B., **Milazzo, M.**, & Danti, S. (2024). Metodologia in silico per la predizione delle proprietà elastiche di scaffold in PLA stampati 3D. IV Congresso Nazionale Italian Digital Biomanufacturing Network (IDBN). Sept. 26 – 27, 2024. Florence, Italy. *Oral*
- 55** Rovelli, R., Kaya, E., Esin, S., Zergat, S., **Milazzo, M.**, Batoni, G., & Danti, S. (2024) Development of a 3D Bioprinted Patch Incorporating Probiotics for Chronic Wound Treatment. The 8th China-Europe Symposium on Biomaterials in Regenerative Medicine (CESB), September 15 – 18, 2024. Nuremberg, Germany. *Poster*
- 54** **Milazzo, M.**, Labardi, M., Seggiani, M., Gallone, G., & Danti, S. (2024). Fabrication and Characterization of Piezoelectric Polyhydroxybutyrate/Barium Titanate Nanocomposite Materials and Scaffolds for Bone Tissue Applications. 11th conference of the Modification, Degradation, Stabilization of Polymers Society (MoDeST 2024), Sept. 1 – 4, 2024. Palermo, Italy. *Oral*
- 53** Sestini, M., Matungano, B., **Milazzo, M.**, & Danti, S. (2024) In silico Methodology for Predicting Elastic Mechanical Properties of 3D-printed PLA Scaffolds. Congresso Nazionale Società Italiana Biomateriali - SIB2024, July 8 – 10, 2024. Faenza, Italy. *Oral*
- 52** Batoni, G., Kaya, E., Maisetta, G., Bianchi, M., Rovelli, R., Zavagna, L., Zergat, S., **Milazzo, M.**, Danti, S., & Esin, S. (2024) Probiotic-containing 3D-printed patches for treatment of infected wounds. Eurobiofilms 2024, June 26-29, 2024, Copenhagen, Denmark. *Poster*

- 51 **Milazzo, M.**, Azimi, B., Favrin, F.L., Zavagna, L., Sestini, M., Gallone, G., Semih, E., Batoni, G., & Danti, S. (2024) Electrospun multi-layered structures with antifouling properties induced by surface morphology, XIV Convegno INSTM, June 9-12, 2024, Cagliari, Italy. *Oral*
- 50 **Milazzo, M.**, Antognoli, B., Ricci, C., Posarelli, C., Figus, M., & Danti, S. (2024) Development of drug-eluting contact lenses via 3D bioprinting to support corneal healing. World Biomaterials Congress (WBC) 2024, May 26-31, 2024, Daegu, South Korea. *Oral*
- 49 **Milazzo, M.**, Pincot, A.M., Danti, S., McKinley, G.H., & Rossi, D. (2024) Development of polymeric small-caliber vascular grafts exploiting the synergies between computational modeling and advanced fabrication approaches. World Biomaterials Congress (WBC) 2024, May 26-31, 2024, Daegu, South Korea. *Poster*
- 48 Danti, S., Ricci, C., **Milazzo, M.**, Labardi, M., Barachini, S., Montali, M., Petrini, M., & Parchi, P. (2023) 3D printing piezoelectric nanocomposites to promote vascularized bone regeneration. Update day on 3d printing in the medical sector, Italian Digital Biomanufacturing Network, December 16, 2023, Pisa, Italy. *Oral*
- 47 Conte, R., Diodato, G., Scudellari, M. C., Tonacci, A., Roccella, S., **Milazzo M.**, Astrea, G., Santorelli, F. M., Ricci, G., Siciliano, G., Torri, F., Aringhieri, G., Lopercolo, D., Malandrini, A., Matà, S., Sperti, M., Angelini, C., & Sansone, F. (2023). Artificial-Intelligence fosters the muscular MRI interpretation by the clinician: a proof-of-concept study. 4th E-Health & Innovation To Overcome Barriers In Neuromuscular Diseases (eNMD) Congress, November 2-4, 2023, Munich, Germany. *Poster*
- 46 Vannini, A., Lazzarini, R., **Milazzo, M.**, Sansone, F., Astrea, G., Frosini, S., Torri, F., Chiappini, R., Ricci, G., Siciliani, G., Santorelli, F. M., Conte, R., & Roccella, S. (2023) Development of AUTOMA 2.0: an innovative wearable platform to assess the muscular activity of patients affected by Neuromuscular Disorders. 4th E-Health & Innovation To Overcome Barriers In Neuromuscular Diseases (eNMD) Congress, November 2-4, 2023, Munich, Germany. *Poster*
- 45 **Milazzo, M.**, Sestini, M., Gallone, G., & Danti, S. (2023). Bioinspired Polymeric Micro-Patterned Structures from Synergistic Additive Manufacturing Approaches. POLY-K 2023/Advances in polymer composites and nanocomposites. September 12-15, 2023. Terni, Italy. *Oral*
- 44 Roccella, S., Vannini, A., Lazzarini, R., **Milazzo, M.**, Calderisi, M., Giorgolo, F., Papi, M., Ricci, G., Torri, F., Conte, R. & Sansone, F. (2023). AUTOMA 2.0: a Wearable Platform to Assess the Muscular Activity of Upper and Lower Limbs in Patients affected by Neuromuscular Disorders. 2023 IEEE 13th International Conference on Consumer Electronics (ICCE) - Consumer Systems for Healthcare and Wellbeing (CSH). September 2-5, 2023. Berlin, Germany, *Oral*
- 43 **Milazzo, M.**, Cinelli, P., Danti, S., & Puglia, D. (2023). FURIOUS: Versatile Furan-based polymers for strIct and high value applicatiOns in packaging, aUtomotive and underwater environments. 2nd Conference on Green Chemistry and Sustainable Coatings, June 28-30, 2023. Pisa, Italy. *Oral*
- 42 Sestini, M., **Milazzo, M.**, Gallone, G., & Danti, S. (2023). Development of polymeric micro-patterned alveolar-like coatings. 2nd Conference on Green Chemistry and Sustainable Coatings, June 28-30, 2023. Pisa, Italy. *Oral*
- 41 Filippi, S., Mallegni, N., Gallone, G., Citernes, S., Danti, S., **Milazzo, M.**, Amato, G., Seggiani, M., & Cinelli, P. (2023). Furan-based polymers for biomedical, automotive, and underwater applications. 2nd Conference on Green Chemistry and Sustainable Coatings, June 28-30, 2023. Pisa, Italy. *Poster*
- 40 Rovelli, R., Cecchini, B., Kaya, E., Maisetta, G. Batoni, G., **Milazzo, M.**, & Danti, S. (2023). 3D Bioprinted patches embedding probiotics for wound healing. 2nd Conference on Green Chemistry and Sustainable Coatings, June 28-30, 2023. Pisa, Italy. *Poster*
- 39 **Milazzo M.**, Mallegni, N., Cristallini, C., Barbani, N., Fredi, G., Dorigato, A., Cinelli, P., & Danti, S. (2023). Characterization of cyclic olefin copolymers as constitutive materials for insulin

reservoirs. XVIII Convegno Nazionale dell'Associazione Italiana di Ingegneria dei Materiali (AIMAT 2023). May 28 – June 1, 2023. Catania, Italy. *Oral*

- 38 **Milazzo, M.**, Ricci, C., Anguillesi, I., Gallone, G., Seggiani, M., & Danti, S., (2022) Rheology of Animal-Based Collagen Inks Reinforced with Hydroxyapatite Nanoparticles for Additive Manufacturing Applications. Polymers in Salina. Sep. 11 -13, 2022. Salina, Italy. *Oral*
- 37 Anderson, G.I., **Milazzo, M.**, & Buehler M.J. (2022). Music-based proteins: new design opportunities for architected biomaterials. 15th World Congress on Computational Mechanics & 8th Asian Pacific Congress on Computational Mechanics (WCCM-APCOM 2022), July 31-Aug. 5, 2022. Virtual Conference (cancelled in Yokohama, Japan, due to COVID-19). *Oral*
- 36 Sansone, F., Tonacci, A., Conte, R., Roccella, S., Santorelli, F.M., Siciliano, G., Matà, S., Malandrini, A., Tupler, R., Angelini, C., **Milazzo, M.**, & The InGene 2.0 project group (2022). InGene 2.0: an intelligent technological approach to genotype-phenotype relationship study in rare neuromuscular diseases. International Congress on Neuromuscular Diseases (ICNMD). July 5-9, 2022. Brussels, Belgium. *Poster*
- 35 **Milazzo, M.**, Anguillesi, I., Gallone, G., Seggiani, M., & Danti, S., (2022) Collagen-based inks reinforced with hydroxyapatite nanoparticles for 3D printing: a rheological study comparing bovine and fish sources, 1st Conference on Green Chemistry and Sustainable Coatings, June 17-18, 2022. Pisa, Italy. *Oral*
- 34 **Milazzo, M.**, Fitzpatrick, V., Owens, C. E., Carraretto, I., McKinley, G. H., Kaplan, D. L., & Buehler, M. J. (2021). Correlating Rheology and Printability of Silk-Hydroxyapatite-based Inks for Micro-prosthetic Applications. 2021 MRS Fall Meeting & Exhibit, Nov. 28 – Dec. 4, 2021. Boston (MA), USA. *Oral*
- 33 **Milazzo, M.**, & Buehler, M. J. (2021). Materials from fire: a new approach to design material from Nature. 2021 MRS Fall Meeting & Exhibit, Nov. 28 – Dec. 4, 2021. Boston (MA), USA. *Oral*
- 32 Azimi, B., Zavagna, L., Ricci, C., Fusco, A., **Milazzo, M.**, Anand, S., Donnarumma, G., Mota, C., & Danti, S. (2021). Tympanic Membrane Scaffolds Aided by Chitin Nanofibrils to Modulate Inflammatory and Immune Response. 6th World Congress of the Tissue Engineering and Regenerative Medicine International Society (TERMIS 2021), Nov. 15 -19, 2021. Virtual Conference (cancelled in Maastricht (NL) due to COVID-19). *Poster*
- 31 **Milazzo, M.**, Mota, C., Berrettini, S., Dharmarajan, A., Puria, S., Moroni, L., & Danti, S. (2021). Tissue engineered 3D fiber-deposited scaffolds for ossicular chain replacement prosthesis. 6th World Congress of the Tissue Engineering and Regenerative Medicine International Society (TERMIS 2021), Nov. 15 -19, 2021. Virtual Conference (cancelled in Maastricht (NL) due to COVID-19). *Oral*
- 30 **Milazzo, M.**, Yu, C.H., Fitzpatrick, V., Stefanini, C., Danti, S., Kaplan, D. L., & Buehler, M. J. (2021). Optimization of 3D printing nozzles for bioengineering applications via computational modeling and deep learning. 6th World Congress of the Tissue Engineering and Regenerative Medicine International Society (TERMIS 2021), Nov. 15 -19, 2021. Virtual Conference (cancelled in Maastricht (NL) due to COVID-19). *Poster*
- 29 **Milazzo, M.**, (2021). Mechanics of mineralized collagen fibrils: new insights from the atomistic scale. 3rd Computing in Engineering Forum 2021. UW-Madison College of Engineering & Grainger Institute for Engineering. Virtual Event. Sept. 21 – 23, 2021. Madison (WI), USA. *Invited Speaker*
- 28 **Milazzo, M.**, & Danti, S. (2021). Modeling viscoelasticity of mineralized collagen fibrils at the atomics scale, XVI convegno nazionale dell'Associazione Nazionale Ingegneria dei Materiali (AIMAT 2021). Sep. 15 – 18, 2021. Cagliari, Italy. *Oral*
- 27 **Milazzo, M.** 3D-printed prostheses for the middle ear. Polymers in Lampedusa. Sep. 1 - 3 Lampedusa, Italy. *Oral*

- 26 **Milazzo, M.** (2021). Developing micro-prostheses: modeling and fabrication techniques. MgSafe-Biomplant Virtual Workshop. April 8, 2021. *Invited Speaker*
- 25 **Milazzo, M.,** Motallebzadeh, H., Tubelli, A., & Puria, S. (2021). Non-Invasive Measures of the Efficiency of Middle-Ear Prosthesis Placement and Length. ARO – 44nd Annual MidWinter Meeting, Feb. 20 - 24, 2021. Virtual Conference (cancelled in Orlando (FL), USA, due to COVID-19). *Poster // Finalist Best Poster Blitz*
- 24 Motallebzadeh, H., Schoenleitner, F., **Milazzo, M.,** & Puria, S. (2020). A simulation-based inference neural network to identify the middle-ear pathologies. The Mass Eye and Ear Machine-Learning Symposium, Dec. 10, 2020. Virtual Conference. *Oral*
- 23 Danti, S., **Milazzo, M.,** Azimi, B., Lazzeri, A., Buehler, M. J., & Berrettini, S. (2020). Smart Nanostructured Multifunctional Biomaterials as Next Generation Cochlear Implant. 2020 MRS Fall Meeting & Exhibit, Nov. 28 – Dec. 4, 2020. Virtual Conference. (cancelled in Boston (MA), USA, due to COVID-19). *Oral*
- 22 **Milazzo, M.,** David, A., Jung, G.S., Danti, S., & Buehler, M.J. (2020). Investigating the viscoelastic behavior of collagen fibrils *via* atomics scale modeling. 2020 MRS Fall Meeting & Exhibit, Nov. 28 – Dec. 4, 2020. Virtual Conference. (cancelled in Boston (MA), USA, due to COVID-19). *Oral*
- 21 **Milazzo, M.** (2020). Viscoelasticity in collagen-based materials: a Molecular Dynamics Study. 5th Healthcare & Life Science & Entrepreneurship #Workshop". Sep. 3 – 4, 2020. Pisa, Italy. *Invited Speaker*
- 20 **Milazzo, M.,** Jung, G.S., Danti, S., & Buehler, M.J. (2020). Wave propagation and energy dissipation along collagen peptides: new insight for bioinspired tissue regeneration. 11th World Biomaterials Congress, Dec. 11 - 16, 2020. Virtual Conference. (cancelled in Glasgow, Scotland, UK,, due to COVID-19). *Oral*
- 19 **Milazzo, M.,** Muyschondt, P.G.G., Carstensen, J., Dirckx, J.J.J., Danti, S., & Buehler, M.J. (2020). Computational Optimization of Total Ossicular Replacement Prosthesis Shape. ARO – 43rd Annual MidWinter Meeting, Jan. 24 - 28, 2020. San José (CA), USA. *Poster*
- 18 **Milazzo, M.,** Danti, S., & Buehler, M.J. (2019). Modeling Collagen Type 1/Hydroxyapatite Structures for Middle Ear Prosthetics. AM-Termis, Dec. 2 - 5, 2019. Orlando (FL), USA. *Poster*
- 17 **Milazzo, M.,** Jung, G.S., Danti, S., & Buehler, M.J. (2019). Mechanical energy transmission in collagen segments. 2019 MRS Fall Meeting & Exhibit, Dec. 1 - 6, 2019. Boston (MA), USA. *Oral*
- 16 Mota, C., Azimi, B., Feula, M., **Milazzo, M.,** & Danti, S. (2019). Instructive Scaffolds for Ear Surgery Application. International Conference on Bio and Nanomaterials (BIONAM) 2019, Sept. 29 – Oct. 3, 2019. *Oral*
- 15 **Milazzo, M.** (2019). Hydroxyapatite and Prosthetics. International Year of the Periodic Table of Elements 2019 sponsored by UNESCO. Latina, Italy. *Keynote speaker*
- 14 **Milazzo, M.,** Danti, S., Buehler, M.J., & Stefanini, C. (2019). Multiscale Modelling Approaches and Advanced Manufacturing Techniques for a New Generation of Biocompatible Middle Ear Prostheses. ARO – 42nd Annual MidWinter Meeting, Feb. 9 - 13, 2019. Baltimore (MD), USA. *Poster*
- 13 **Milazzo, M.,** Sagresti, L., Qin, Z., Danti, S., & Buehler, M.J. (2019). Modelling Piezoelectric Electrospun Fiber Meshes for Cochlear Implants. ARO – 42nd Annual MidWinter Meeting, Feb. 9 - 13, 2019. Baltimore (MD), USA. *Poster*
- 12 **Milazzo, M.** (2018) "Additive Manufacturing for Bio-Composites: new challenges and opportunities for tissue engineering". Symposium on Additive Manufacturing and Innovative Technologies. Sept. 27-28, 2018. Steyr, Austria. *Keynote speaker*
- 11 Danti, S., Azimi, B., **Milazzo, M.,** Stefanini, C., Qin, Z., & Buehler, M. J. (2018) Electrospun piezoelectric nanocomposites for cochlear stimulation, 1st International Conference on

- Materials, Mimicking, Manufacturing from and for Bio Application, June 27 - 29, 2018 Milan, Italy. *Oral*
- 10 **Milazzo, M.**, Danti, S., Inglese, F., Berrettini, S., & Stefanini, C. (2018). Micro-machining of bovine bone for otologic applications. Euspen 18th International Conference & Exhibition, June 4 - 8, 2018. Venice, Italy. *Poster*
 - 9 **Milazzo, M.** (2018). Laser and Prosthetics. International Day of Light 2018 sponsored by UNESCO. Latina, Italy. *Keynote speaker*
 - 8 Cultrone, M., **Milazzo, M.**, Mencattelli, M., Donati, E., & Stefanini, C. (2018). An innovative 3D Force/Torque Measuring Device for Orthodontic Applications. 3rd Global Summit and Expo on Dental & Oral Diseases. Focusing on Advancements for the Future of Dental and Oral Health Care. February 26 - 27, 2018. Abu Dhabi, UAE. *Oral*
 - 7 **Milazzo, M.**, D'Alessandro, D., Stefanini, C., Pertici, G., Perale, & G., Danti, S. (2017). Smartbone®: a new alternative to reconstruct bone tissues (Smartbone®: una nuova alternativa per la ricostruzione dei tessuti ossei). XIX National Congress for the IORS - Italian Orthopaedic Research Society – Regenerative medicine and new technologies for orthopedic surgery – Focus on Nanotechnologies. December 1 - 2, 2017. Pisa, Italy. *Oral*
 - 6 **Milazzo, M.**, Stefanini, C., Inglese, F., Danti, S., & Berrettini, S. (2017). Innovative ergonomic micro-prostheses in cortical bone for the reconstruction of the auditory ossicles. 28th Annual Conference of the European Society for Biomaterials (ESB). September 4-8, 2017. Athens, Greece. *Oral*
 - 5 **Milazzo, M.**, Fallah, E., Carapezza, M., Kumar, N. S., Lei, J. H., & Olson, E. S. (2017). The Path of a Click Stimulus from Ear Canal to Umbo. Mechanics of Hearing 2017. June 19-24, 2017. Brock University - Ontario, Canada. *Poster*
 - 4 **Milazzo, M.**, Danti, S., Inglese, F., De Vito, A., Bruschini, L., Berrettini, S., & Stefanini, C. (2017). Novel banked bone ossicular replacement prostheses with ergonomic and functional geometry. ARO - 40th Annual MidWinter Meeting Feb. 11 - 15, 2017. Baltimore (MD), USA. *Poster*
 - 3 **Milazzo, M.**, Fallah, E., Carapezza, M., & Olson, E.S. (2017). The Path of a Click Stimulus from Ear Canal to Umbo. ARO - 40th Annual MidWinter Meeting Feb. 11 - 15, 2017. Baltimore (MD), USA. *Oral*
 - 2 **Milazzo, M.**, D'Alessandro, D., Danti, S., Stefanini, C., Pertici, G., & Perale, G. (2016). Bone matrix/copolymer/gelatin scaffold (SmartBone®) as a biomimetic graft for sinus lift procedure in dental surgery. 10th World Biomaterials Congress (WBC). May 17-22, 2016. Montréal, Canada. *Poster*
 - 1 Danti, S., Stoppe, T., Mota, C., Trombi, L., **Milazzo, M.**, De Vito, A., & Berrettini, S. (2016). Engineering advanced middle ear tissues: where biomimicry of vibrating surfaces connects to optimal organ function. 10th World Biomaterials Congress (WBC). May 17-22, 2016. Montréal, Canada. *Poster*

BOOK CHAPTERS

- 6 **Milazzo, M.**, & Stefanini, C. (2022). "Fabrication of endoluminal medical devices" in "Endoscopic robots: Design, R&D and future trends". Elsevier. doi: doi.org/10.1016/B978-0-12-821750-4.00007-4
- 5 **Milazzo, M.**, Cristofaro, G., Berrettini, S., & Danti, S. (2022). "Applications of Bioactive Glasses for Implants in the Ear". In "Bioactive Glasses and Glass-Ceramics: Fundamentals and Applications", 459-477. Wiley. doi: 10.1002/9781119724193.ch19
- 4 Jordan, E. M., **Milazzo, M.**, Chew, S. A., & Danti, S. (2022). "Biomaterials and devices for immunotherapy". In "Engineering Technologies and Clinical Translation", 97-133. Academic Press. doi:10.1016/B978-0-323-90949-5.00004-8

- 3 **Milazzo, M.**, Libonati, F., Zhou, S., Guo, K., & Buehler M.J. (2022). "Biomimicry for natural and hybrid composites and the use of machine learning in hierarchical design" in "Biomimicry for Materials, Design and Architecture (Habitats): Innovations and Applications". Elsevier. doi:10.1016/B978-0-12-821053-6.00002-3
- 2 Feula, M., **Milazzo, M.**, Giannone, G., Azimi, B., Trombi, L., Cacopardo, L., Moscato, S., Lazzeri, A., Ahluwalia, A., Berrettini, S., Mota, C., & Danti S. (2019). "Bioartificial Sponges for Auricular Cartilage Engineering" in International Conference on Bio and Nanomaterials (pp. 191-209). Springer, Cham.
- 1 **Milazzo, M.**, & Stefanini, C. (2019). "Digital Fabrication Technologies for Surgical Micro-Devices Creativity" in "Advanced bioengineering methods, technologies and tools in surgery and therapy". Patron Editor. ISBN 9788855534598

PATENTS

- 9 Berrettini, S., Forli, F., Danti, S., **Milazzo, M.**, De Vito, A., Stefanini C., Prosthetic Device for reconstruction after tympanoplasty (Dispositivo protesico per ricostruzione timpanoplastica). Priority number: 102020000000217.
- 8 Panepinto, A., Santopadre, S., Danti, S., & **Milazzo, M.**, Device for tongue musculature rehabilitation (Dispositivo per la riabilitazione dei muscoli della lingua). Priority number: 102019000006406.
- 7 Bianchi, M., Ciuti, G., Dario, P., Czimermann, T., **Milazzo, M.**, Oddo, C. M., Roccella, S., Chiurazzi, M., Farnioli, E., Minutillo, M., Bonilla Jimenez, J. M., Massari, L., Cambioni, D., Carrozza, M. C., Stefanini, C., Leoni, F., Bray, D., Rizzo, T., Bruni, F., & Collodi, L., System for the detection of defects on a surface of at least a portion of a body and method thereof. Application number: WO2019197981A1.
- 6 Inglese, F., Stefanini, C., **Milazzo, M.**, Cavallotti, C., Pelliccia, R., Donati, E., Pagella, M., Varese, E.G., Piovano, M., & Jansen Van Vuuren, G., Mechatronic system for pipe maintenance (Sistema mecatronico per la manutenzione di tubature). Application number: WO2018IB52811 20180423, Priority number: IT20170044486 20170421.
- 5 Magnasco, M., **Milazzo, M.**, Cavallotti, C., Inglese, F., Leoni, F., Chiari, F., Roccella, S., Stefanini, C., & Ramacciotti, M., Welding apparatus. WO2017134015 (A1).
- 4 Conti, P.A., Greco, G., Nepote, A., Inglese, F., **Milazzo, M.**, & Stefanini, C., Regenerative hydraulic shock-absorber for vehicle suspension. WO2016097898 (A1).
- 3 Chiari, F., Stefanini, C., **Milazzo, M.**, Magnasco, M., & Inglese, F., Handling apparatus for performing a tig weld with regulation of speed of the fed wire. WO2016083430 (A1).
- 2 Chiari, F., **Milazzo, M.**, Magnasco, M., Stefanini, C., & Inglese, F., Welding tool for performing SMAW or MIG weld with maintenance of a constant distance between the electrode and the weld area. WO2016083429 (A1).
- 1 Chiari, F., Magnasco, M., **Milazzo, M.**, Stefanini, C., & Inglese, F., Welding assistance device with a welding mask having a velocity sensor. WO2016083258 (A1).

OTHER PUBLICATIONS

- **Milazzo, M.**, & Inglese, F., (2017). Creativity and engineering: inseparable elements for the innovation. Crea@tivity E-Magazine. <http://www.progettocreativity.com>

ORGANIZER/CHAIR AT CONFERENCES

- Libonati, F., Mirzaali, M. J., **Milazzo, M.**, Ruffoni, D., Zadpoor, A. A., (2022). Co-organizer for the mini-symposium entitled: "Lessons from nature: design of bioinspired architected materials" at

the 15th World Congress on Computational Mechanics & 8th Asian Pacific Congress on Computational Mechanics (WCCM-APCOM 2022), July 31 – Aug. 5, 2022. Yokohama, Japan.

- Member of the organizing committee of the 1st Conference on Green Chemistry and Sustainable Coatings, June 17-18, 2022. Pisa, Italy.
- Member of the evaluation committee for the Best Poster Award at the UW-Madison College of Engineering & Grainger Institute for Engineering. 3rd Computing in Engineering Forum 2021. Virtual Event. Sept. 21 – 23, 2021. Madison (WI), USA.
- Danti, S., Chew, S. A., **Milazzo, M.**, (2019). Co-organizer/Co-chair for the symposium entitled: “Frontiers in Biocomposites for Cell Modulation” at the AM-Termis, Dec. 2 - 5, 2019. Orlando (FL), USA.

INVITED SEMINARS

- Federal University of São Paulo, São Paulo, Brazil – “Materials Science and Engineering for Biomedical Applications” 2024
- Federal University of São Paulo, São Paulo, Brazil – “Developing micro-prostheses: modeling and fabrication techniques” 2022
- Fowler Lab, Columbia University, New York, NY, United States of America – “Wave propagation and energy dissipation in collagen molecules” 2020
- Fermi National Accelerator Laboratory, Batavia, IL, United States of America – “BioRobotics and Materiomics: tools and approaches for scientific and technologic advancements”. 2020
- Biomimetics and Dexterous Manipulation Lab, Stanford University, Palo Alto, CA, United States of America – “Multiscale modeling for collagenous and bone tissues for middle ear prosthetics” 2020
- Salzburg Center for Smart Materials, Universität Salzburg, Salzburg, Austria – “Biomateriomics at the Nexus of Sound and Matter” 2019
- Dept. of Civil and Industrial Engineering, University of Pisa, Pisa, Italy – “Marie Skłodowska Curie Actions: research opportunities for young researchers from the European Commission -Tips, tricks and personal experiences” 2018
- The BioRobotics Institute of Scuola Superiore Sant’Anna. Pontedera, Italy – “Research opportunities for young researchers from the European Commission-Tips, tricks and personal experiences” 2018
- Piaggio Foundation, Pontedera (PI), Italy. “Creative Engineering” for Crea@tivity: Design Research & Innovation”. 2017
- Columbia University, New York, NY, United States of America – “Development of Nanocomposite Piezoelectric Materials for Cochlear Sensory-Neural Stimulation: preliminary results” 2017
- Massachusetts Institute of Technology, Cambridge, MA, United States of America – “The middle ear: modelling and design of innovative micro-prostheses” 2017
- Johns Hopkins University, Baltimore, MD, United States of America – “Bioengineering approaches for micro-prosthetics of middle ear” 2017
- Columbia University, New York, NY, United States of America – “Bioengineering approaches for micro-prosthetics and micro-orthotics” 2016
- University of Pisa, Pisa, Italy – “Mechanical engineers and the industrial plants” 2013
- University of Pisa, Pisa, Italy – “Mechanical engineers and the industrial plants” 2012

OTHER DISSEMINATION ACTIVITIES AS SPEAKER

- Panel: “Forum Manufacturing Technologies & Robotics: the Future is now” organized by the Italian Trade Agency, Imperial College, June 12, 2018 London, UK
- Radio interview on “What’s next” radio show at Radio QRS. April 6, 2018
- Panel: “Creativity & Professionalism: a dialog between schools and companies”, Modartech Institute, March 23, 2018. Pontedera (PI), Italy

OTHER OFFICIAL ASSIGNMENTS

- External Member in PhD Committees (Materials Science and Bioengineering) 2022-present
- Member of the Commission for the Italian Ministry of Economic Development to evaluate proof-of-concept projects among Scuola Superiore Sant’Anna (Pisa, Italy), Scuola Normale Superiore (Pisa, Italy), Università di Palermo (Palermo, Italy) in the framework of the call JUMP (Joint Universities’ program for PoC). 2020-2022

ADDITIONAL TRAINING

- “Multiscale Materials Design”. June 12-16, 2017. Instructor: Prof. Markus J. Buehler. Massachusetts Institute of Technology, Cambridge (MA), USA
- “Sound & Hearing”. Spring 2016. Instructor: Prof. Elizabeth S. Olson. Columbia University, New York (NY), USA
- 1st European Summer School on “Production Technologies & Equipment for Micro-Manufacturing”. July 23 – 26, 2012. The BioRobotics Institute, Scuola Superiore Sant’Anna, Pontedera (PI), Italy

RESEARCH EXPEDITIONS

- Instituto Superior de Engenharia do Porto – ISEP, Porto, Portugal (2023). Objective: meetings and teaching at master course classes in the framework of Erasmus+ Mobility program.
- Khalifa University, Abu Dhabi, United Arab Emirates (2018). Objective: meetings aimed at defining new joint projects
- Columbia University, New York, NY, United States of America (2017). Objective: Development of new strategies for tissue regeneration of the tympanic membrane
- Massachusetts Institute of Technology, Cambridge, MA, United States of America (2017). Objective: Development of Nanocomposite Piezoelectric Materials for Cochlear Sensory - Neural Stimulation
- Columbia University, New York, NY, United States of America (2016). Objective: Advanced studies on the mechanics of the eardrum – Modelling and measurements on ex vivo samples with Laser Doppler Vibrometer
- Technische Universität Dresden, Dresden, Germany (2016). Objective: Design and Laser Doppler Vibrometer measurements on prostheses for the middle ear

RESEARCH PROJECTS

- 18 AWAD: “Agro-industrial Waste valorization through Machine-learning Accelerated Design”. Funding agency: European Union, Next Generation EU – 2024 - present

	Innovation Grant. Funding: € 74,736.44 (UNIFI Budget). Coordinator: International Foundation Big Data and Artificial Intelligence for Human Development (IFAB) and Tampieri s.r.l.. Role: Project Engineer and co-writer of the research proposal	
17	PISA: "Harnessing HPC: Granarolo's Bio-Driven Revolution for Sustainable Packaging". Funding agency: European Union, Next Generation EU – Innovation Grant. Funding: € 82,631.74 (UNIFI Budget). Coordinator: International Foundation Big Data and Artificial Intelligence for Human Development (IFAB). Role: Project Engineer and co-writer of the research proposal	2024 - present
16	LAVAZZA: "Sustainable flexible food packaging: accelerating material discovery via multiscale modelling". Funding: € 33,024.55 (UNIFI Budget). Coordinator: International Foundation Big Data and Artificial Intelligence for Human Development (IFAB). Role: Project Engineer and co-writer of the research proposal	2023 - present
15	PROMISE: "Piezoelectric cochlear implant: the new paradigm for sensorineural hearing loss". Funding: € 158,917 (UNIFI Budget). Coordinator: Prof. Stefano Berrettini. Role: Project Engineer and co-writer of the research proposal	2023 - present
14	FURIOUS: "Versatile FURan-based polymers for strict and high value applications in packaging, automotive and underwater environments". Funding agency: European Commission (Horizon Europe). Funding: € 411,250 (INSTM Budget). Coordinator: Prof. Debora Puglia. Role: Project Engineer in INSTM	2023 - present
13	MAGIC: "Small-caliber vascular Grafts in pulsed-flow microfluidics". Funding agency: MISTI – MIT/UNIFI Seed Funds. Fundings: \$ 22,880. Role: Principal Investigator	2023 - present
12	SETHI: "Smart Endotracheal Tubes to improve anesthesiology practices -". Funding Agency: University of Pisa. Funding: € 31,619.50. Role: Principal Investigator	2022 - present
11	SITEP: Silk Integrative Theory Experiment Project. PIs: Prof. Markus J. Buehler (MIT), Prof. David Kaplan (Tufts University). Role: Project Engineer	2019 - present
10	ROBOCOENOSIS: ROBOTS in cooperation with a bioCOENOSIS. Funding agency: European Commission (H2020). Funding: € 609,544 (SSSA Budget). Coordinator: Prof. Goritschnig. Role: Project Engineer	2021-2022
9	COLLHEAR: 3D printed COLLAGen type I-Hydroxyapatite prostheses for the middle EAR. Funding agency: European Commission (Marie Skłodowska-Curie Individual Fellowships – MSCA-IF-GF). Funding: €224,300. Involved faculty members: Prof. Cesare Stefanini (Scuola Superiore Sant'Anna, Italy), Prof. Serena Danti (Università di Pisa, Italy), Prof. Markus J. Buehler (MIT, USA), Prof. Joris Dirckx (Universiteit Antwerpen, Belgium), Prof. Sunil Puria (Massachusetts Eye and Ear, USA), Prof. David Kaplan (Tufts University, USA), Prof. Elizabeth S. Olson (Columbia University, USA). Role: Experienced Researcher – Coordinator	2018 - 2021
8	NANO-SPARKS: development of Nanocomposite Piezoelectric Materials for Cochlear Sensory-Neural Stimulation. Funding: MISTI – MIT/UNIFI Seed Funds. Funding: \$22,900. PIs: Prof. Serena Danti (Università di Pisa, Italy), Prof. Markus J. Buehler (MIT, USA). Role: Project Engineer	2017 - 2019
7	CENTAURO: robotics for the automotive field. Funding agency: Tuscany Region. Funding: €2,400,000 (SSSA Budget). PI: Prof. Paolo Dario. Role: Project Engineer	2016 - 2019
6	EOLO: innovative systems to collect and to exploit micro-eolic energy in different anthropized environments. Funding agency: Tuscany Region. Funding: €267,900. SSSA PI: Prof. Cesare Stefanini. Role: Project Engineer	2016 - 2019

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| 5 | OPTEMUS: optimised energy management and use. Funding agency: European Commission (H2020). Funding: €97,210 (SSSA Budget). PI: Dipl. Ing. Dr. Techn. Alois Steiner. Role: Project Engineer | 2015 - 2019 |
| 4 | SUBCULTRON: submarine cultures perform long-term robotic exploration of unconventional environmental niches. Funding agency: European Commission (H2020). Funding: €529,000 (SSSA Budget). PI: Prof. Thomas Schmickl. Role: Project Engineer | 2015 - 2019 |
| 3 | BIOMEAR: development of novel micro-manufactured biological – biohybrid prostheses for ear. Funding agency: Tuscany Region. Funding: €38,740 (SSSA Budget). PI: Prof. Stefano Berrettini. Role: Project Engineer | 2012 - 2014 |
| 2 | MICHELANGELO: Study and design of artificial cognitive systems for machine tools. Funding agency: Italian Government. Funding: €122,300 (SSSA Budget). PI: Prof. Elisabetta Ceretti. Role: Project Engineer | 2012 - 2013 |
| 1 | INTEG-MICRO: new production technologies of complex 3D Micro-devices through innovative engineering techniques. Funding agency: European Commission (FP7). Funding: €10,800,000. PI: Prof. Paolo Dario. Role: Project Engineer | 2012 -2012 |

INDUSTRIAL COLLABORATIONS

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| 11 | <u>Topic:</u> Robotics for welding. Funding agency: GE Nuovo Pignone Tecnologie Srl. Funding: €140,060. PI: Prof. Cesare Stefanini. Role: Team Leader and co-writer of the research proposal | 2016 -2016 |
| 10 | <u>Topic:</u> Breaking systems. Funding agency: Brembo. Funding: €127,400. PI: Prof. Cesare Stefanini. Role: Team Leader and co-writer of the research proposal | 2015 - 2018 |
| 9 | <u>Topic:</u> Servo-assisted welding. Funding agency: GE Nuovo Pignone Tecnologie Srl. Funding: €69,360. PI: Prof. Cesare Stefanini. Role: Team Leader and co-writer of the research proposal | 2016 -2016 |
| 8 | <u>Topic:</u> Robotics for welding. Funding agency: GE Nuovo Pignone. Funding: €130,060. PI: Prof. Cesare Stefanini. Role: Team Leader and co-writer of the research proposal | 2015 - 2015 |
| 7 | <u>Topic:</u> Innovative shock absorbers. Funding agency: Sistemi Sospensioni SpA. Funding: €20,000. PI: Prof. Cesare Stefanini. Role: Team Leader and co-writer of the research proposal | 2015 - 2016 |
| 6 | <u>Topic:</u> Design of innovative vending machines. Funding agency: AAT/Oranfresh. Funding: €20,000. PI: Prof. Cesare Stefanini. Role: Team Leader and co-writer of the research proposal | 2014 - 2022 |
| 5 | <u>Topic:</u> HMI for welding activities. Funding agency: GE Nuovo Pignone. Funding: €48,000. PI: Prof. Cesare Stefanini. Role: Team Leader and co-writer of the research proposal | 2014 - 2016 |
| 4 | <u>Topic:</u> Shock absorbers. Funding agency: Sistemi Sospensioni Spa. Funding: €63,310. PI: Prof. Cesare Stefanini. Role: Team Leader and co-writer of the research proposal | 2014 - 2014 |
| 3 | <u>Topic:</u> Innovative systems for the acoustic industry. Funding agency: Powersoft spa. Funding: €30,000. PI: Prof. Cesare Stefanini. Role: Team Leader and co-writer of the research proposal | 2014 - 2015 |
| 2 | <u>Topic:</u> Industrial endoscopy. Funding agency: SNAM. Funding: €170,000. PI: Prof. Cesare Stefanini. Role: Project Engineer | 2013 - 2022 |

- 1** Topic: Energy harvesting. Funding agency: Magna Closures. Funding: €14,160.
 PI: Prof. Cesare Stefanini. Role: Team Leader and co-writer of the research proposal 2013 - 2014

AFFILIATIONS

- Scuola Superiore Sant'Anna, Department of Excellence in Robotics & A.I. 2019 - present
- National Interuniversity Consortium of Materials Science and Technology (Consorzio Interuniversitario Nazionale per la Scienza e Tecnologia dei Materiali - INSTM), Firenze, Italy. 2019 - present
- Department of Biomedical Engineering, Tufts University, Medford, MA, USA. 2019 - 2022
- Department of Civil and Environmental Engineering, Massachusetts Institute of Technology, Cambridge, MA, USA. Field: Material Science, Bioengineering and Mechatronics 2017- 2023
- Dipartimento di Patologia Chirurgica, Medica, Molecolare e dell'Area Critica, Università di Pisa, Italy. 2015 - 2018
- The BioRobotics Institute, Scuola Superiore Sant'Anna, Pisa, Italy. 2012 - present

REFEREEING

Chemical Engineering Journal, Scientific Reports, Heliyon, Journal of the Brazilian Society of Mechanical Sciences and Engineering, Composites Science and Technology, ACS Biomaterials Science & Engineering, Advanced Science, Polymer Composites, Materials Today: Proceedings, Machines, Journal of Applied Biomaterials & Functional Materials, Biomimetics, Frontiers in Bioengineering and Biotechnology, Rapid Prototyping Journal, International Journal of Human-Computer Interaction, Bio-Design and Manufacturing (BDMJ), The Journal of The Minerals, Metals & Materials Society (JOM), Acta BioMaterialia, MRS Bulletin, Advanced Engineering Materials, Journal of Clinical Medicine, Materials & Design, Biosensors, International Journal of Environmental Research and Public Health, Applied Science, Hearing research, Geriatrics, Journal of Physics and Chemistry of Solids, Advances in Mechanical Engineering, Journal of Applied Biomaterials & Functional Materials, Journal of the Mechanical Behavior of Biomedical Materials, Canadian Journal of Electrical and Computer Engineering, Sensors and Actuators A: Physical, Ferroelectrics, International Conference on Intelligent Robots and System (IROS), PLOS ONE, IEEE Transactions on Industrial Electronics, IEEE Robotics & Automation – Letters.

MENTORING ACTIVITIES

Graduate Students (PhD Candidates)

- Matteo Sestini. Thesis title: “Innovative synergistic methodologies to design and fabricate devices made of biomaterials involving additive manufacturing and computational modeling”. PhD Defence expected by 2026. 2023 - present

Graduate Students (Master Thesis Supervisor)

- David Joseph Naylor. Thesis title: Extensional Rheology and Stability of Electrospinning Operations for Biopolymer Solutions. In collaboration with Prof. Gareth H. McKinley from Massachusetts Institute of Technology (Cambridge, MA, USA). Grade: 107/110 2024
- Eligio Francesco Canelli. Thesis title: “Biomaterial-Assisted 3D In Vitro Model of Intestine Epithelial Barrier to Evaluate Superfood and Nutraceuticals”. Grade: 110/110 2023

- Roberta Rovelli. Thesis title: "Fabrication and Characterization of Multi-Scale Biomaterial Models for Bacteriotherapy". Grade: 110/110 with honors (In collaboration with Beatrice Cecchini)
- Beatrice Cecchini. Thesis title: "Fabrication and Characterization of Multi-Scale Biomaterial Models for Bacteriotherapy". Grade: 110/110 with honors. (In collaboration with Roberta Rovelli)
- Matteo Sestini. Thesis title: "Development of Microfabrication Technologies for Polymeric Structures as 3D Alveolar In Vitro Models". Grade: 110/110 with honors
- Benedetta Antognoli. Topic: "development of epidermal growth factor-eluting contact lenses via 3D bioprinting to support cornea healing". Grade: 110/110 with honors

• **Undergraduates (Bachelor Thesis Supervisor)**

- Ilaria Rosati. Thesis title: "Obstruction Sleep Apnea Syndrome (OSAS): incidence, aetiology and hypotheses on its biomechanical modelling". Grade: 27/30 2019
- Alessia Blundo. Thesis title: "Polymeric scaffolds for the tissue engineering of the middle ear". Grade: 28/30. 2017
- Andrea Mari. Thesis title: "Bioengineering approaches to promote growth of the bone tissue within the odontoiatric field". Grade: 30/30 2016
- Chiara Cavaliere. Thesis title: "Preliminary design of a wearable sensor aimed at monitoring the welding speed". Grade: 29/30.
- Gaia Fiore. Thesis title: "Mechanical characterization of a cartilaginous tissue to reconstruct the eardrum and study of the adhesion issues on host tissues". Grade: 29/30.
- Nicole Antonuccio. Thesis title: "Mechanical characterization and comparison between polymeric cables made of Dyneema and steel cables for surgical applications". Grade: 30/30.
- Elisabetta Capoccia. Thesis title: "Methodologies to reconstruct the tympanic membrane". Grade: 23/30.
- Grazia Zambella. Thesis title: "Preliminary design of a human-machine interface aimed at servo-assisting the operator for manual welding activities. Grade: 28/30 2015
- Angela Imere. Thesis title: "Estimation of the mechanical properties of polymeric scaffolds to be used for the middle ear prosthetics". Grade: 27/30.
- Veronica Lanteri. Thesis title: "Optimization of the cutting parameters for the micro-milling of cortical bone used for the prosthetics of the middle ear". Grade: 28/30.
- Sara Cirelli. Thesis title: "Acoustic characterization and comparison among biological and artificial prostheses of the middle ear". Grade: 26/30.
- Deborah Deste. Thesis title: "Preliminary design of an innovative handle to servo-assist the operator within manual welding activities". Grade: 28/30.
- Morgana Lalli. Thesis title: "Study of a micro-device to reconstruct the bony walls after tympanoplasty". Grade: 30/30.
- Costanza Culmone. Thesis title: "State of the art on the biocompatibility and integration features for middle ear prostheses". Grade: 30/30. 2014
- Anna Luzzi. Thesis title: "State of the art on scaffold of the micro-prosthetics". Grade: 30/30.

- Claudia Cea. Thesis title: “Comparative analysis on methods for acoustic characterization of the acoustic prostheses”. Grade: 30/30.
- Rachele Tenerini. Thesis title: “Manufacturing technologies and applications of cartilaginous material for otorhinolaryngology prosthetics”. Grade: 28/30.
- Giulia Barondi. Thesis title: “Reverse engineering of middle-ear ossicles, manufacturing technologies and biologic integration issues”. Grade: 27/30.

ACADEMIC REFERENCES

Prof. Cesare Stefanini, Professor of Bioengineering

Role: Ph.D. Supervisor / Post-Doctoral Supervisor

Primary Affiliation: The BioRobotics Institute, Scuola Superiore Sant’Anna, Pontedera (PI), Italy

Phone: +39 050.883.412. Email: cesare.stefanini@santannapisa.it

Prof. Markus J. Buehler, Jerry McAfee (1940) Professor in Engineering

Role: Post-Doctoral Supervisor

Primary Affiliation: Dept. of Civil and Environmental Engineering, Massachusetts Institute of Technology, Cambridge, MA, USA.

Phone: +1 617.452.2750. Email: mbuehler@mit.edu

Prof. David Kaplan, Stern Family Professorship in Engineering

Role: Post-Doctoral Supervisor

Primary Affiliation: Department of Biomedical Engineering, Tufts University, Medford, MA, USA.

Phone: +1 617.627-3251. Email: david.kaplan@tufts.edu

Prof. Elizabeth S. Olson, Professor of Biomedical Engineering and Auditory Biophysics

Role: Ph.D. Advisor

Primary Affiliation: Depts. of OTO/HNS and Biomedical Engineering, Columbia University, New York, NY, USA

Phone: +1 212.305.3993. Email: eao2004@columbia.edu

Prof. Serena Danti, Associate Professor of Materials Science and Engineering

Role: Ph.D. Tutor / Post-Doctoral Supervisor

Primary Affiliation: Dept. of Civil and Industrial Engineering, University of Pisa, Pisa, Italy

Phone: +39 050.221.7874. Email: serena.danti@unipi.it