

Valerio Luca Mainardi

Summary

I am currently attending a PhD program in Bioengineering (Politecnico di Milano) pursuing my activities at the Cell and Tissue Engineering Lab (IRCCS Istituto Ortopedico Galeazzi). My PhD research project focuses on the use of 3D printing and bioprinting aiming at generating constructs for the replacement of damaged musculoskeletal tissues. I received my Master's Degree in Biomedical Engineering from Politecnico di Milano in 2016. During my Master Thesis, I worked in the field of Bone Tissue Engineering focusing on the development of 3D printed scaffolds for dynamic cell seeding and culture.



Key words

Cell culture techniques, Bioreactor, Additive Manufacturing, 3D Printing, 3D Modeling, SolidWorks, Matlab, Computational simulations, Ansys, Biostatistics, GraphPad Prism, SPSS

Personal information

Name	Valerio Luca Mainardi
Date of birth	28/08/1990
Nationality	Italian
Phone	+39 0266214066
E-mail	valerio.mainardi@grupposandonato.it valerioluca.mainardi@gmail.com

Work experience

Dates (from - to)	11/2017 - present
Name and address of employer	Politecnico di Milano, Piazza Leonardo da Vinci, 32, 20133, Milan, Italy
Type of business or sector	Hospital research laboratory
Occupation or position held	PhD Student
Main activities and responsibilities	Research activity IRCCS Istituto Ortopedico Galeazzi: - Use of 3D printing and bioprinting aiming at generating constructs for the replacement of damaged musculoskeletal tissues
Dates (from - to)	09/2016 - 10/2017
Name and address of employer	IRCCS Istituto Ortopedico Galeazzi, via Riccardo Galeazzi, 4, 20161, Milan, Italy
Type of business or sector	Hospital research laboratory
Occupation or position held	Researcher
Main activities and responsibilities	Research activity: - Use of 3D printing for the development of devices suitable for tissue engineering applications

Dates (from - to)	10/2016 - 04/2017
Name and address of employer	Università degli Studi di Milano, via Festa del Perdono, 7, 20122, Milan, Italy
Type of business or sector	Clinical research
Occupation or position held	Data manager
Main activities and responsibilities	Research activity at Ospedale San Giuseppe di Milano: <ul style="list-style-type: none"> - Database creation and management - Statistical analysis applied to clinical trials
Dates (from - to)	09/2015 - 07/2016
Name and address of employer	IRCCS Istituto Ortopedico Galeazzi, via Riccardo Galeazzi, 4, 20161, Milan, Italy
Type of business or sector	Hospital research laboratory
Occupation or position held	Intern
Main activities and responsibilities	Research activity: <ul style="list-style-type: none"> - Design and production of 3D printed cellular scaffolds - Fluid-dynamic analysis through computational simulations - Cell adhesion and proliferation experiments in static and dynamic culture using perfusion bioreactors

Education and training

Dates (from - to)	09/2014 - 07/2016
Name and type of organization providing education and training	Master's Degree in Biomedical Engineering , Politecnico di Milano
Principal subjects / occupational skills covered	Specialization in Cells and Tissues Engineering: <ul style="list-style-type: none"> - Application of engineering methods to biology and biotechnology - Detailed study of micro-technologies, molecular biomechanics, micro fluid-dynamics, cellular systems and bio-artificial systems
Dates (from - to)	09/2009 - 07/2014
Name and type of organization providing education and training	Bachelor's Degree in Biomedical Engineering , Politecnico di Milano
Principal subjects / occupational skills covered	Detailed study of theoretical and scientific aspects of mathematics and engineering applied to biomedical and biotechnological field
Dates (from - to)	09/2004 - 07/2009
Name and type of organization providing education and training	Classical High School Diploma, Liceo Ginnasio Alessandro Manzoni, Milan, Italy

Personal skills and competence

Italian	Mother tongue
Other languages	
English	Good reading, writing and verbal skills TOEIC Diploma obtained in 2014. Score: 885
German	Elementary reading, writing and verbal skills
Social skills and competence	Good ability to work in team and good capacity to communicate in public contexts acquired in university during the development and exposition of individual/group projects, in extra-university field through in-hospital experience and class teaching.
Organizational skills and competence	Good capacity for autonomous organization of work and establishment of priorities and good command of database selection and management.
Technical skills and competence	Good ability to use programming softwares (C, Matlab), 3D modeling systems (SolidWorks, SolidEdge), softwares for computational simulations (Ansys), for statistical analysis (GraphPad Prism, SPSS) and word processing applications and database management (Microsoft Office Package, Latex). Good knowledge of graphic design applications (PhotoShop, ImageJ). Good skills in management and use of 3D printers . Good ability to work within a biological laboratory and knowledge of cell culture and analysis techniques and characterization processes of materials, acquired both in university during lab classes and during the work at the hospital research laboratory.
Artistic skills and competence	Good skills in design and execution of carpentry work acquired during free time.
Other skills and competence	Good knowledge of general concepts regarding prevention and safety at work and safety in chemical laboratories, acquired and attested during extracurricular courses in university. Good knowledge of general concepts regarding biohazard, chemical, carcinogenic and mutagenic, electrical risk in health, fire risk and emergency management, VDU risk, acquired and attested during courses in the workplace at the Istituto Ortopedico Galeazzi. Good knowledge of the general terms relating to Good Clinical Practice (GCP), which was acquired and attested during courses attended in the free time.

Scientific publications and works

S. Lopa, C. Mondadori*, **V. L. Mainardi***, G. Talò, M. Costantini, C. Candrian, W. Świączkowski, and M. Moretti "*Translational application of microfluidics and bioprinting for stem cell-based cartilage repair*", *Stem Cells Int.* 2018 Feb 20;2018:6594841. doi:10.1155/2018/6594841

N. Mezzina, M. Viganò, G. Tosetti, S. Labanca, R. Lombardi, **V.L. Mainardi**, A.L. Fracanzani, P. Lampertico, M. Rumi, and M. Primignani, “*Validation of the Baveno VI criteria for screening of esophageal varices in patients with metabolic and alcohol related compensated advanced chronic liver disease*”, *Digestive and Liver Disease* 49S (2017) e19–e42 doi:10.1016/j.dld.2017.01.062

“*Biomaterials and medical devices in orthopedics and traumatology*”, class taught on November 15th 2017 at SOMA - Istituto Osteopatia Milano, Viale Sarca, 336, 20126, Milan, Italy

Master’s Degree thesis:

“*Optimization of fiber geometry in FDM manufactured scaffolds and evaluation of dynamic seeding efficiency*”

Bachelor’s Degree thesis:

“*Reproducibility of external surface and internal target during radiation therapy to the left breast with deep inspiration breath-hold techniques*”

*Equally contributing authors

Conference proceedings

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| 2018 | <p>1st TERMIS-EU WORKSHOP in collaboration with ISBF
Warsaw, PL</p> <p>Poster presentation: <i>Optimization of fiber geometry in FDM manufactured scaffolds for the improvement of dynamic seeding efficiency</i></p> |
| 2018 | <p>8th Research Day of Southern Switzerland
Lugano, CH</p> <p>Poster presentation: <i>Design of 3D-mesoscale systems for the development of vascularized tissues through experimental and computational methods</i></p> |

I authorize the use of my personal data according to the Italian Legislative Decree 196/03 and subsequent amendments.