Federico Serpe

PhD student

Rome, 27/03/1995

Personal information

Viale Regina Elena, 291, 00161, Rome, Italy

federico.serpe@uniroma1.it

+393474715492

Purpose

I am a PhD student in Theoretical and Applied Mechanics interested in studying the microfluidic fabrication approach to 3D print multi-functional *in vitro* tissue models for tissue engineering purposes.

Languages

Italian Native language

English B2 level

Spanish A2 level

Abilities

BIOENGEINEERING

- Fabrication of microfluidic devices via 3D printing and soft lithography.
- Image acquisition through Fast CAM, Confocal Laser Scanning and Confocal Spinning Disk microscopes.
- Micro Particle Image Velocimetry (uPIV) measurements.
- Culture of A549 and HUVECs cell lines and hBMSCs primary cells.

COMPUTER SCIENCE

- Familiar with CAD software (Fusion 360®, Rhinoceros 6).
- Expert in data analysis with MATLAB®
- Image processing and editing with ImageJ® and Adobe Illustrator®.
- Experience in Raspberry Pi and Arduino programming (C/C++)
- Basic knowledge of CFD software as FLUENT (Ansys®) and COMSOL Multiphysics®.

Education

MSC IN BIOMEDICAL ENGINEERING | ROMA TRE UNIVERSITY | *OCT 2017– MAR 2020*

Thesis: *"A novel platform for live observation of endothelial cells morphodynamics during endothelial barrier formation"*

Advisor: Prof.ssa Gabriella Cincotti, *Roma Tre University* and Prof. Carlo Massimo Casciola, *Sapienza University*

Outline: Study on endothelial cells culture in a microfluidic device and observation of cellular morphodynamics during physiological growth.

Vote: 110/110 *cum laude*

ERASMUS+ PROGRAM | NORWEGIAN UNIVERSITY OF SCIENCE AND TECHNOLOGY (NTNU) | AUG – DEC 2018

Master courses: Biophysical Micromethods, Medical Imaging, Molecular biophysics and Nanomedicine.

BSC IN ELECTRICAL ENGINEERING | ROMA TRE UNIVERSITY | *OCT 2014 – DEC 2017*

Thesis: *"Colorimetric technology for the monitoring of water samples – Spectrophotometric measurements for the evaluation of water pH"*

Advisor: Prof.ssa Gabriella Cincotti, *Roma Tre University*

Outline: pH measurement of water samples through colorimetry technologies.

Vote: 110/110 *cum laude*

Experiences & accomplishments

PHD IN THEORETICAL AND APPLIED MECHANICS | UNIVERSITY OF ROME "LA SAPIENZA" | *NOV 2020 – PRESENT*

In collaboration with the **Center for Life Nano and Neuro Science (CLN2S)**, Fondazione Istituto Italiano di Tecnologia (IIT).

Project: *"Harnessing novel microfluidic platform for the biofabrication of 3D complex in vitro tissues"*

Advisor: Prof. Carlo Massimo Casciola, *Sapienza University*

Outline: Development of a novel protocol for the fabrication of microfluidic devices in PDMS via advanced 3D printing methods. Characterisation and exploitation of microfluidic devices as printheads for the fabrication via 3D bioprinting approach of hierarchical and functional tissue substitutes for the regeneration of musculoskeletal defects.

EXHIBITOR | MAKER FAIRE – VIII EDITION | *10-13 DEC 2020*

Presentation of a 3D-printed sonication chamber for the observation of US-triggered biological effects

MSC TRAINEESHIP | CLN2S@SAPIENZA, IIT | *SEPT 2019 – MAR 2020*

Realization of microfluidic devices in PDMS through soft lithography techniques. Biological functionalization of microfluidic devices. Insertion and culture of endothelial cells (HUVECs) and image acquisition through spinning-disk confocal microscope. Image processing and cell features extraction.

BSC TRAINEESHIP | ROMA TRE CHEMISTRY LAB (CISDIC) | *SEP – DEC 2017*

Performed spectrophotometric measures through We-Lab photometer unit. Sample preparation, building of the calibration curve and acquisition of unknown samples. Basic chemistry lab security formation.

COLLABORATOR | ROMA TRE SCIENTIFIC LIBRARY | *IN 2015/2016, 2016/2017 AND 2019/2020 A.Y.*

Provided support to library operators.

Acquired knowledge on Dewey Decimal Classification (DDC)