Curriculum Vitae. Omar Tricinci, PhD

Experience

⋆ 01/01/2024 - 31/08/2025 *Postdoctoral fellow*
Istituto di BioRobotica - Scuola Sant'Anna Pisa, Pontedera (Italy)

- Development fabrication and characterization of biocompatible micro-robots. [ERC-STG Celloids (Grant Agreement ID: 948590, PI: Prof. S. Palagi)].

⋆ 01/10/2020 - 31/12/2023 *Postdoctoral fellow*
Center for Materials Interfaces - Istituto Italiano di Tecnologia, Pontedera (Italy)

- Development and characterization of *micropatterned functional surfaces* inspired by nature, mainly focusing on the field of *super-hydrophobicity* (biomimetic Salvinia-Effect).
- Study of new strategies for the microfabrication of *integrated functional MEMS* by means of direct laser lithography integrated with other processes, like metal deposition via shadowing effect and microstructures handling via ultrathin conformable polymeric film. [H2020-FETOPEN project 5D Nanoprinting (Grant Agreement ID: 899349, PI: Dr. V. Mattoli)].
- Study of photoresist formulations for *actuated microdevices* and for *subtracting manufacturing* via 2- photon polymerization.

⋆ 01/11/2014 - 30/09/2020 *Postdoctoral fellow*
Center for Micro-BioRobotics - Istituto Italiano di Tecnologia, Pontedera (Italy)

- *Biomimetics* applied at the microscale, using direct laser lithography as microfabrication tool:
  · Replication of the microstructures present on *Salvinia Molesta* leaves for *unconventional super-hydrophobic surfaces*. Study of how dimensional scaling affects the wettability of hydrophilic materials, that can be turned hydrophobic if properly designed at the micro- and nano-scale.
  · Microfabrication of the *fibrillar microstructures of gecko's setae* for the reproduction of the *dry adhesion* performance of the natural counterpart.
  · Microfabrication of *protein-coated octopus-inspired micro-sucker* surfaces, with *wet adhesion* capability, exploitable in moist conditions.

- *Soft materials micropatterning* via flexible molds with complex 3D micrometric features, for the patterning of curved macroscopic surfaces with soft mouldable materials with shapes not achievable with standard methods (e.g., reentrant angles).
- In the field of *biomedicine*, development of a *real-scale, biomimetic and biohybrid microfluidic chip* for the simulation of the blood-brain barrier. Development of a 3D-printed real-scale biohybrid model for the *brain tumor microenvironment* and fabrication of a dynamically controllable microfluidic device exploitable as a realistic in vitro model for high-throughput *drug screening* in central nervous system diseases. [ERC Proof of Concept (Grant Agreement ID: 832045), PI: Prof. G. Ciofani)].

⋆ 10/2013 - 03/2014 *Visiting scholar*
ETH Zürich, Zurich (Switzerland)

- Implementation of a micro-force measurement setup for the detection of adhesion force in artificial gecko setae fabricated via direct laser lithography.

Education

⋆ 02/2023 - 06/2023
Bocconi University, Milan (Italy)

Startup Pre-Acceleration Program.

⋆ 11/2010 - 10/2014
Scuola Superiore Sant'Anna, Pisa (Italy)

PhD in Innovative Technologies of Information and Communication - Curriculum Biorobotics (100/100 cum Laude)
Thesis: A 3D laser lithography approach for microfabrication of bioinspired functional surfaces.

⋆ 08/2011
Université Joseph Fourier, Grenoble (France)

European School of Nanosciences and Nanotechnology.

⋆ 01/2008 - 09/2010
Università di Pisa, Pisa (Italy)

Master Degree in Biomedical Engineering (110/110 cum Laude)
Thesis: Study, design and development of microactuation systems based on catalytic processes.

⋆ 09/2004 -12/2007
Università di Pisa, Pisa (Italy)

Bachelor Degree in Biomedical Engineering (110/110 cum Laude)
Thesis: Study of natural chordae tendineae: anatomical features and mechanical properties.

⋆ 08/2004
Princeton University, Princeton (USA)

Gran Sasso - Princeton physics summer school.

Professional skills

⋆ TECHNICAL SKILLS

- Good compentence in cleanroom fabrication techniques, UV lithography, soft-lithography, stereolithography, spin coating, metal deposition (via sputtering and thermal evaporation), plasma cleaning and modification, laser cutting.
- Deep knowledge and experience in 3D direct laser lithography.
- Good ability in sample characterization: profilometry, optical microscopy, scanning electron microscopy.
- Good experience in microfluidics, contact angle and microforce measurement.
- Basic knowledge and experience in confocal fluorescence microscopy.
- Basic experience in electrodeposition.

⋆ COMPUTER SKILLS

- Good competence in Matlab (data analysis and image processing), Blender, LaTeX, Microsoft Office.
- Basic competence in Solidworks, Scilab, Inkscape, CorelDRAW, Adobe Illustrator, Gimp.

Patent

Photoresist formulations for 3D microprinting techniques, 2021, *International license.* IT102021000013421, PCT/IB2022/054718.

Publications

I am co-author of 24 publications, of which 16 in international peer-reviewed journals, 8 in proceedings of international conferences.

Reviewing Activity

I am a reviewer for the peer-reviewed journals Nature Communications, ACS Applied Materials and Interfaces, Advanced Healthcare Materials, Small, Small Methods, Applied Sciences, Advanced Engineering Materials, Micromachines.

Languages

Italian (mother tongue); English (advanced).

20/09/2025