Filippo Begarani

Job positions

Since March 2019

- **Person Responsible for Medical Devices** (EU 2017/745) and **Quality Manager at Omnidermal Biomedics Srl**
  Web link: http://omnidermal.com/

Since January 2019

- **Head of Innovation at PBL SRL - Pharmaceutical Automation**
  Web link: https://www.pblsrl.it/

Since September 2022

- Elected Member of the Supervisory Board of the Italian '**NATIONAL CENTER FOR GENE THERAPY AND DRUGS BASED ON RNA TECHNOLOGY**'
  https://www.unipd.it/fondazione-centro-nazionale-terapia-genica

Education

Since November 2014
Until November 2018

PhD in Biophysics at Scuola Normale Superiore di Pisa (Italy)

- **Project:** "DEVELOPMENT AND CUSTOMIZATION OF FLUORESCENCE CORRELATION SPECTROSCOPY TECHNIQUES FOR DRUG DELIVERY STUDIES"

From September 2012
To October 2014

Master of Science Engineering in Nanotechnologies for Information and Communication Technologies (ICTs)

- **Politecnico di Torino** (1st semester)
- **Institute Nationale Polytecnique de Grenoble** (2nd semester)
- **Ecole Polytecnique Federale de Lausanne** (3rd semester)
- **Italian** and **French** Master of Science degree certification
- **International Master of Science certification released by the 3 institutions**
  Web Link: http://nanotech.grenoble-inp.fr/courses/

From September 2009
To July 2012

Bachelor Degree in Electronic Engineering

- **Università degli Studi di Parma**
  Thesis: "A KALMAN-FILTER USED FOR ESTIMATING THE TIME-OF-FLIGHT OF AN ULTRASONIC SENSOR"

Languages

- **Italian:** native language
- **English:** IELTS mark: 7 (obtained in July 2014)
- **Spanish:** well understood and good skills in spoken, not certified.
- **French:** B1 level (obtained in May 2013)

Experience

Summers 2007, 2008 and 2009

- Internship experiences as electrician in:
  GF s.p.a. Via T. Edison, 3 - 43045 Rubbiano fraz. di Solignano (Parma)
  Italy
  Peculiarity: switchboard assembly

June 2010

- Trial week in "Accademia Aeronautica Militare Italiana" as pilot candidate
  Peculiarity: passed all the national tests, then quitted for personal reasons

Summer 2013

- Internship experience at CNR-IMEM in Parma (Italy) on Silicon Carbide (SiC) nanowires and SiC nanofilms for medical applications
  Peculiarity: job done especially on SiC nanostructure growth and functionalization

February-September 2014

- Master of Science Thesis at **Houston Methodist Research Institute** with title:
  "Optimized lung decellularization processes to create nanoporous particle infused acellular scaffolds to promote lung regeneration".

January 2016-April 2017

- Collaboration with GF s.p.a. and Intrauma s.p.a. for development of a wound healing patch (rewarded with a **Seal of excellence** in the HORIZON 2020 SME Program issued by Europian Union.

20th March 2019

- While responsible for Medical Devices, Omnidermal Biomedics was awarded with the **Price Leonardo** StartUp 2018 by the President of the Italian Republic Sergio Mattarella, the Italian Prime Minister Giuseppe Conte and The Italian Minister of Economic Development Luigi Di Maio.
  (https://www.comitatoleonardo.it/it/premi/premio-leonardo-start-up-2018/)

Since June 2019

- PBL Srl Company contact person for **subsidized financial operations**

Since June 2019

- In addition to the role of CEO, he has held the position of head of **regulatory affairs** of medical devices for MDD, MDR and FDA approvals for Omnidermal Biomedics. Working in partnership with important Notified Bodies such as IMQ Spa. Under his lead, Omnidermal certified its first class 2a medical product, the WoundViewer, which was worth the award of the afore mentioned "Premio Leonardo Startup2018". In PBL, he led the regulatory team that certified the **Automatic Breathing Unit (ABU)** medical device in a record time: less than 3 months.

March-July 2020

- Inventor of **ABU** a special ventilator born during Covid emergency that was worth the recognition of a high investment assigned by Invitalia within the context of 'Cura Italia' devcree. ABU is a simple and cheap ventilator produced by PBL that gained the attention of many developing countries that are looking for scientifically advanced solutions with lower prices.
  (https://www.invitalia.it/cosa-facciamo/emergenza-coronavirus/incentivi-curaitalia/le-imprese-finanziate/omnidermal-biomedics)

January 2022

- In PBL, he established a strong partnership with the department of Pediatric Oncohematology of Ospedale Pediatrico Bambino Gesù in Rome, related to the development of the first fully-automated system for the production of CAR-T cell.

Additional Info

- Particularly attracted by Microsystem design for Biomedical applications, and study of Quantum phenomena and their relation to business development.

Publications

- Nichols, J. E., La Francesca, S., Niles, J. A., Vega, S. P., Argueta, L. B., Frank, L., ... **Begarani F.** ….& Cortiella J. (2018). Production and transplantation of bioengineered lung into a large-animal model. ***Science translational medicine***, *10*(452), eaao3926. http://stm.sciencemag.org/content/10/452/eaao3926

- **Begarani F.**, Cassano D., Margheritis E., Marotta R., Cardarelli F. & Voliani V. (2018). Silica-based Nanoparticles for Protein Encapsulation and Delivery. **nanomaterials**, 8(11), 886. https://www.mdpi.com/2079-4991/8/11/886

- **Begarani, F.**, D'Autilia, F., Signore, G., Del Grosso, A., Cecchini, M., Gratton, E., ... & Cardarelli, F. (2019). Capturing Metabolism-Dependent Solvent Dynamics in the Lumen of a Trafficking Lysosome. ***ACS nano***. https://pubs.acs.org/doi/abs/10.1021/acsnano.8b07682

- Marrone, F., Zoppo, G., Vescovi, L., **Begarani, F.**, Palama, A., Secco, J., & Corinto, F. Automatic Visual Inspection Machine for Pharmaceutical Infusion Bags Implementing Cellular Neural Networks. In 2021 17th International Workshop on Cellular Nanoscale Networks and their Applications (CNNA) (pp. 1-4). **IEEE.** https://ieeexplore.ieee.org/abstract/document/9610794

- **Begarani, F.**, D'Autilia, F., Ferri, G., Pesce, L., Azzarello, F., De Lorenzi, V., ... & Cardarelli, F. (2022). Measuring Molecular Diffusion in Dynamic Subcellular Nanostructures by Fast Raster Image Correlation Spectroscopy and 3D Orbital Tracking**. International journal of molecular sciences**, 23(14), 7623. https://www.mdpi.com/1422-0067/23/14/7623

- Todaro, B., **Begarani, F.**, Sartori, F., & Luin, S. (2022). Is Raman the best strategy towards the development of non-invasive continuous glucose monitoring devices for diabetes management?. ***Frontiers in chemistry*****,** *10*. https://www.frontiersin.org/articles/10.3389/fchem.2022.994272/full

Patents

October 2014

- Main inventor of the **International Patent application**: "APPARATUS AND METHODS FOR PRODUCTION OF MESOPARTICLE-INFUSED ACELLULAR TISSUES FOR ORGAN REGENERATION" (**Pub. No.:** WO/2017/070392).

Newspapers

IlSole24Ore

- https://www.ilsole24ore.com/art/start-up-italiane-caccia-partner-giappone-AChtJWq
- https://www.ilsole24ore.com/art/comitato-leonardo-premia-eccellenze-made-italy-riconoscimento-elena-zambon--ABFJICgB

Corriere della Sera

- https://torino.corriere.it/economia/20_marzo_29/da-manuale-diventa-meccanicola-startup-trasforma-ventilatori-3e6af3a4-7125-11ea-a7a6-80954b735fc3.shtml

Fortune Italia

- https://www.fortuneita.com/2019/10/31/il-tech-connesso-premiato-al-forum-pa-sanita/

Rai News 24

- https://www.omnidermal.it/abu-rainews24/

Gazzetta di Parma

- https://www.gazzettadiparma.it/italiamondo/non-solo-parma/emilia/2020/03/28/news/coronavirus_bonfiglioli_dirotta_sui_ventilatori_polmonari-3040484/