



# Giulia Alessandri, Ph.D. Student

📍 Department of Industrial Engineering | University of Bologna  
Viale del Risorgimento 2, Bologna, Italy

✉ giulia.alessandri5@unibo.it  
📞 (+39) 338 6529804

🏠 <https://www.unibo.it/sitoweb/giulia.alessandri5>  
🌐 <https://www.linkedin.com/in/alessandrigiulia/>  
ORCID <https://orcid.org/0000-0003-1586-4090>

📅 Ravenna (Italy), 1 Gennaio 1995

I am Giulia Alessandri, a third-year PhD student specializing in advanced technologies, such as Computer-Aided Design and 3D printing for orthopaedic surgical planning. Currently, my research focuses on developing 3D-printed customized scaffolds using biomaterials, aiming to promote bone regeneration with properties similar to human bone.

I am very interested in an international study opportunity as a visiting PhD student to further improve my expertise in personalized medicine.

## Education

2021 - ongoing

**University of Bologna | Department of Industrial Engineering (DIN)**  
**37<sup>TH</sup> CYCLE • PHD IN MECHANICS AND ADVANCED ENGINEERING SCIENCES**

Research: *Integration of advanced technologies in Virtual Surgical Planning and design of patient-specific tools*

Supervisors: Prof. Frizziero Leonardo, Prof. Liverani Alfredo

2018 - 2021

**University of Bologna**  
**MASTER'S DEGREE IN ADVANCED DESIGN | LM-12 DESIGN**

Thesis title: *Study of the Design Process for a Sensorized Crutch*

Degree grade: 110/110 cum laude

Supervisor: Prof. Frizziero Leonardo. Co-supervisors: Prof. De Marchi Luca and RF Zauli Matteo

2014 - 2017

**Polytechnic of Milan**  
**BACHELOR'S DEGREE IN INDUSTRIAL PRODUCT DESIGN | L-4 INDUSTRIAL DESIGN**

Thesis: *Zip-to-One, a modular system comprising two attachable backpacks.*

Degree grade: 107/110

Supervisor: Arch. Davide Maria Bruno. Co-supervisor: Arch. Daniela Ferré

## Research Experience

2024 - ongoing

**University of Bologna | CIRI Advanced Mechanics and Materials**  
**RESEARCH FELLOW**

Research project: *Technology and innovative biomaterials for environmentally friendly 3D Printing*

Tutor: Prof. Donnici Giampiero

2021 - 2023

**University of Bologna | Department of Industrial Engineering (DIN)**  
**RESEARCH FELLOW**

Research project: *3D printing, augmented reality and Computer-Aided Design for the diagnosis, preoperative surgical planning and design of cutting guide*

Tutor: Prof. Liverani Alfredo

## Teaching experience

2021 - ongoing

**University of Bologna**  
**THESIS CO-SUPERVISOR**

*Assistance in thesis development for Bachelor's and Master's degree students in Industrial Product Design, Advanced Design, Mechanical Engineering, and Management Engineering, focusing on projects with applications in the medical field.*

A.A. 2023/2024  
A.A. 2022/2023  
A.A. 2021/2022

## Università di Bologna

### ACADEMIC TUTOR

Teaching Support for the course in Automatic Mechanical Design T - Applications of Mechanical Design T for the Bachelor's Degree in Mechanical Engineering.

Professors of the course: Giampiero Donnici, Leonardo Frizziero, Luca Piancastelli and Roberto Valmori

## Professional experience

---

Feb. 2021 - Jun. 2021

### eSteps Health, Bologna

#### PRODUCT AND UX/UI DESIGNER

Product and UI design for a smart device for patients with neurodegenerative diseases.

Gen. 2020 - Mar. 2020

### INAIL Prothesis Center, Vigorso di Budrio (Bologna)

#### INTERNSHIP

Study of the development and production process of customized aesthetic covers through 3D scanning of prostheses, CAD modeling, and 3D printing using SLS technology.

## Languages

---

**Italian** Native

**English** Intermediate

## Computer skills

---

### 3D modeling

Blender, PTC Creo Parametric, Autodesk Inventor, Rhinoceros, Autodesk Alias, AutoCAD, MeshMixer, MeshLab, nTopology

### 3D printing slicer

Ultimaker Cura, BambuLab Studio, PrusaSlicer, CreatWare

### Image segmentation

3D Slicer, Invesalius, Materialise Mimics

### Graphic

Adobe Photoshop, Adobe Illustrator, Adobe InDesign, Adobe XD, Keyshot

### Programming

Arduino, Processing

### Productivity

Microsoft Office, Mendeley, Zotero

## Publications

---

MENOZZI G.C., DEPAOLI A., RAMELLA M., **ALESSANDRI G.**, FRIZZIERO L., LIVERANI A., ROCCA G., TRISOLINO G., Side-to-Side Flipping Wedge Osteotomy: Virtual Surgical Planning Suggested an Innovative One-Stage Procedure for Aligning Both Knees in "Windswept Deformity". *J. Pers. Med.* 2023, 13, 1538. <https://doi.org/10.3390/jpm13111538>

DEPAOLI A., MENOZZI G.C., DI GENNARO G.L., RAMELLA M., **ALESSANDRI G.**, FRIZZIERO L., LIVERANI A., MARTINELLI D., ROCCA G., TRISOLINO G., The Flipping-Wedge Osteotomy: How 3D Virtual Surgical Planning (VSP) Suggested a Simple and Promising Type of Osteotomy in Pediatric Post-Traumatic Forearm Deformity. *J. Pers. Med.* 2023, 13, 549. <https://doi.org/10.3390/jpm13030549>

FREDDI M., FERRETTI P., **ALESSANDRI G.**, LIVERANI A., Reverse Engineering of a Racing Motorbike Connecting Rod. *Inventions* **2023**, 8, 23. <https://doi.org/10.3390/inventions8010023>

**ALESSANDRI G.**, SANTI G.M., MARTELLI P., GUIDOTTI E., LIVERANI A., 3D-printing of porous structures for reproduction of a femoral bone [version 1; peer review: awaiting peer review]. *F1000Research* **2023**, 12:17. <https://doi.org/10.12688/f1000research.129267.1>

**ALESSANDRI G.**, FRIZZIERO L., SANTI G.M., LIVERANI A., DALLARI D., VIVARELLI L., DI GENNARO G.L., ANTONIOLI D., MENOZZI G.C., DEPAOLI A., ROCCA G., TRISOLINO G., Virtual Surgical Planning, 3D-Printing and Customized Bone Allograft for Acute Correction of Severe Genu Varum in Children. *Journal of Personalized Medicine* **2022**, 12, 2051. <https://doi.org/10.3390/jpm12122051>

FERRETTI P., FUSARI E., **ALESSANDRI G.**, FREDDI M., FRANCA D., 3D printed custom gas cam for race bike application using Progrid® lock on grips mod.708 [version 1; peer review: awaiting peer review]. *F1000Research* **2022**, 11:1162 <https://doi.org/10.12688/f1000research.125184.1>

FRIZZIERO L., LEON-CARDENAS C., GALIÈ G., **ALESSANDRI G.**, IANNARELLI L., LUCCI L., MERIGHI S., POLIGNANO P., IDeS Method Applied to an Innovative Motorbike - Applying Topology Optimization and Augmented Reality. *Inventions* **2022**, 7, 91. <https://doi.org/10.3390/inventions7040091>

FRIZZIERO L., TRISOLINO G., SANTI G.M., **ALESSANDRI G.**, AGAZZANI S., LIVERANI A., MENOZZI G.C., DI GENNARO G.L., FARELLA G.M.G., ABBRUZZESE A., SPINNATO P., BERTI L., BENEDETTI M.G., Computer-Aided Surgical Simulation through Digital Dynamic 3D Skeletal Segments for Correcting Torsional Deformities of the Lower Limbs in Children with Cerebral Palsy. *Applied Sciences* **2022**, 12, 7918. <https://doi.org/10.3390/app12157918>

FRIZZIERO L., DONNICI G., LIVERANI A., **ALESSANDRI G.**, MENOZZI G.C., VAROTTI E., Developing Innovative Crutch Using Industrial Design Structure (IDeS) Methodology. *Applied Sciences* **2019**, 9 (23), 5032, <https://doi.org/10.3390/app9235032>

## Conference Presentations and Workshops

---

- Sept. 2023 - Florence, Italy **ADM 2023 International Conference**  
*3D Printing Methods in Medicine: the Case of an Aortic Section*  
**GIULIA ALESSANDRI**, GIAN MARIA SANTI, LEONARDO FRIZZIERO, ALFREDO LIVERANI
- Dic. 2022 - Sidney, Australia **1st Australian International Conference IEOM**  
*Managing Complex Geometries through Rhinoceros: Voronoi cells*  
**GIULIA ALESSANDRI**, IZER ISUFI, GIULIO GALIÈ, GIAMPIERO DONNICI
- Oct. 2022 - Florence, Italy **Additive4Biomedical - CoCoAM**  
*The application of CAD (Computer-Aided Design) and 3D printing for surgical planning*  
**GIULIA ALESSANDRI**
- Jul. 2022 - Rome, Italy **5th European International Conference IEOM**  
*3D Reconstruction and 3D Printing of Sections of the Aortic Arch*  
GIAN MARIA SANTI, **GIULIA ALESSANDRI**, LEONARDO FRIZZIERO, ANTONIO LOFORTE, GIANLUCA FOLESANI, LUCA BOTTA, DAVIDE PACINI
- Mar. 2022 - Istanbul, Turkey **International Conference IEOM**  
*Advanced Design Method of 3D-Printed Cutting Guides Development for Orthopedic Surgery*  
**GIULIA ALESSANDRI**, GIANMARIA SANTI, CHRISTIAN LEON-CARDENAS, PATRICH FERRETTI

## Awards

---

- Jul. 2022 - Rome, Italy **1st Place - IEOM Graduate Student Paper Competition Awards**  
*3D Reconstruction and 3D Printing of Sections of the Aortic Arch.*

Updated to

December 2023

Signature

