Grazia Chiara Menozzi

Advanced Industrial Designer

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Language
Italian (mother tongue); English (B2)

Driving license
Category B

About me

I am a Master's graduate in Advanced Industrial Design and currently pursuing a PhD in Mechanics and Advanced Engineering Sciences. After completing my studies, I undertook an internship in the automotive field, where I refined my design abilities. Since 2022, I have been working as a healthcare researcher at the Pediatric Orthopedics and Traumatology Unit at the Rizzoli Orthopedic Institute. In this role, I primarily focus on virtual surgical planning and the design of 3D printed cutting guides.

Work experience

2023

Researcher at IRCCS Rizzoli Orthopedic Institute

Research project "Virtual planning, surgical simulation, and 3D printing of patient-specific models and medical devices for candidates undergoing corrective and reconstructive musculoskeletal surgery" at the Pediatric Orthopedics and Traumatology Unit.

- Research and development activities in the field of virtual surgical planning, modeling, and 3D printing of medical devices;
- Support in drafting the 2024 Ricerca Finalizzata (RF) project submitted to the Ministry of Health, titled "Customized Bone Allografts Using In-Hospital 3D Printing Technology for Pediatric Orthopedic Surgery applications: Risk-Benefit, Cost-Utility, and Improvement Strategies."
- Co-author of the video "In-situ fixation and Imhäuser intertrochanteric osteotomy for chronic severe slipped capital femoral epiphysis" for the AAOS Annual Meeting 2025;
- Co-author of the award winner video "Modified Green's Procedure in Sprengel Shoulder" for the AAOS Annual Meeting 2024;
- Drafting and submission of the Clinical Trial "Advanced Surgical Simulation Processes in the Correction of Skeletal Defects and Deformities (SIMULA)", P.I.: Grazia Chiara Menozzi (Pediatric Orthopedics and Traumatology Unit - IOR IRCCS); ethics committee approval code: CE AVEC: 643/2023/Sper/IOR; ClinicalTrials.gov ID: NCT06380530;
- Participation in training activities for the use of Materialise Mimics and Materialise 3-matic software.
- Virtual surgical planning has been performed for over 110 pediatric orthopedic cases, including upper and lower limb deformity corrections, oncologic resections with massive bone allograft reconstructions, and gradual lengthening using external fixators and intramedullary nails. In addition, more than 90 patient-specific and graft-specific cutting guides have been designed and 3D printed.

(August 2023-present)

2025

Researcher at Materialise

Research internship abroad at Materialise (Leuven, Belgium) within the PhD program: research on shoulder muscle segmentation.
(April 2025-July 2025)

2023

Research fellow at IRCCS Rizzoli Orthopedic Institute

Research project "Medicina in-silico nella diagnosi, prognosi e trattamento dei disordini muscolo scheletrici", funded by the Italian Ministry of Health, RCR-2022-23682299 project, under the Italian Musculoskeletal Apparatus Network RAMS.

- Research and development activities in the field of virtual surgical planning, modeling, and 3D printing of medical devices;
- Virtual surgical planning for over 30 pediatric cases, including 21 utilizing 3D printed patient-specific cutting guides and 6 involving the planning of customized bone grafts;
- Participation in training activities for the use of Materialise Mimics software.

(February 2023-August 2023)

2022

Research fellow at IRCCS Rizzoli Orthopedic Institute

Research project "Trattamenti innovativi per le patologie muscolo scheletriche: dal planning virtuale preoperatorio alla medicina rigenerativa. TI-RAMS.", funded by the Italian Ministry of Health, RCR-2021-23671217 project, under the Italian Musculoskeletal Apparatus Network RAMS.

- Research activities aimed at defining a workflow for virtual surgical planning, modeling, and 3D printing of surgical cutting guides to support the creation of an In-Office 3D Printing Point of Care;
- Co-author of the video "Chronic Monteggia lesion in children: Diagnosis and treatment by combined ulnar osteotomy and annular ligament reconstruction by using Virtual Surgical Planning and customized massive allograft" for the AAOS Annual Meeting 2023;
- Contributed to the drafting of the Clinical Trial "Customized Bone Allografts by 3D Printing (3D-MALF II)", P.I.: Dr. Giovanni Trisolino (Pediatric Orthopedics and Traumatology Unit - IOR IRCCS); ethics committee approval code: CE AVEC: 301/2022/Sper/IOR; ClinicalTrials.gov ID: NCT05700526.

(February 2022-January 2023)

2021 **Designer at Ferrari S.p.A.**
Post-graduate internship: research and development of concepts for automotive.
(March 2021-September 2021)

2021 **Collaborator at Scuola di Arti e Mestieri F. Bertazzoni**
School-work alternation workshop: lessons on product design and prototyping.
(February 2021-March 2021)

2020 **Industrial Designer at Toyota Material Handling Manufacturing Italy S.p.A.**
Master's thesis internship: design of an autonomous vehicle system for food products.
(October 2020-February 2021)

2020 **Industrial Designer at Toyota Material Handling Manufacturing Italy S.p.A.**
Curricular internship
(February 2020-April 2020)

2018 **Designer for fitness equipment at Ext3 (TORMEC s.r.l.)**
Curricular internship
(January 2018-March 2018)

Education

2022-today **PhD in Mechanics and Advanced Engineering Sciences**
PhD programme, University of Bologna (Bologna)

2018-2021 **Two year Master in Advanced Design (Top grade)**
Master's Degree, University of Bologna (Bologna)

2015-2018 **Bachelor in Industrial Design (Top grade)**
Bachelor's Degree, University of Bologna (Bologna)

2008-2013 **Scientific High School Diploma**
"Belfiore" High School, (Mantova)

Certificates

2022 **Mimics User Certification**
Mimics User Certification Program - Certified by Materialise

2018 **IELTS Academic 6.5**
British Council - CLA (University Language Center) University of Bologna

2015 **EQF Level II in CAD Design**
Fondazione Scuola di Arti e Mestieri "F. Bertazzoni" (Suzzara, MN)

Digital skills

Creo Parametric; Blender; 3D Slicer; Materialise Mimics; Materialise 3-matic; AutoCAD; REDCap; Word; Excel; PowerPoint; Adobe Photoshop; Adobe Illustrator; Adobe InDesign; Adobe Premiere

Soft skills

Teamwork; Collaboration; Attention to detail; Motivation

Awards

Merit-based scholarship awarded by Cassa Nazionale di Previdenza e Assistenza
Scholarship awarded for the academic years 2015/16, 2016/17, 2017/18, 2018/19, 2019/20

Excellence in Scientific Research Award for Emilia-Romagna
Retreat della Ricerca dell'Emilia-Romagna 2024

iF Design Award 2024
Toyota Urban Runner, Delivery Drone - Toyota Material Handling Europe
(https://ifdesign.com/en/winner-ranking/project/toyota-urban-runner/640888)

Conferences

2024 **Intelligenza artificiale nella sanità del futuro: opportunità e sfide**
Presentation of the work: "Processi di simulazione chirurgica avanzata nella correzione dei difetti e delle deformità scheletriche", 12/12/2024 (Bologna)

2024 **ICMMB2024**
Presentation of the work: "Virtual Surgical Planning and Sterilizable 3D Printed Patient-Specific Instruments for Pediatric Bone Corrections" 11-13/09/2024 (Bruxelles)

2024 **Retreat della Ricerca dell'Emilia-Romagna**
Presentation of the work: "Pianificazione e simulazione in ambiente virtuale in chirurgia ortopedica pediatrica", 04-05/05/2024 (Rimini)

2023 **IDBN - Update Day on 3D printing in the Medical Sector**
Presentation of the work: "Virtual surgical planning for the realization of custom bone graft in pediatric orthopedic acute bone correction", 16/12/2023 (Pisa)

2022 **XXII IORS National Congress – Italian Orthopaedic Research Society**
Presentation of the work: "Applicazioni della modellazione e stampa 3D in ortopedia pediatrica. Esperienza preliminare allo IOR", 10-11/06/2022 (Bologna)

Scientific publications

2024 Trisolino G, Menozzi GC, Depaoli A, Schmidt OS, Ramella M, Viotto M, Todisco M, Mosca M, Rocca G. In Situ Fixation and Intertrochanteric Osteotomy for Severe Slipped Capital Femoral Epiphysis Following Femoral Neck Fracture: A Case Report with Application of Virtual Surgical Planning and 3D-Printed Patient-Specific Instruments. J Pers Med. 2025 Jan 1;15(1):13. doi: 10.3390/jpm15010013. PMID: 39852205; PMCID: PMC11766527.

2024 Depaoli A, Magnani M, Casamenti A, Ramella M, Menozzi GC, Gallone G, Viotto M, Rocca G, Trisolino G. Evaluation of Physical and Mental Health in Adults Who Underwent Limb-Lengthening Procedures with Circular External Fixators During Childhood or Adolescence. Children (Basel). 2024 Oct 30;11(11):1322. doi: 10.3390/children11111322. PMID: 39594897; PMCID: PMC11592713.

2024 Depaoli A, Ramella M, Menozzi GC, Di Gennaro GL, Rocca G, Trisolino G. Opening-Wedge High Tibial Osteotomy with a Cancellous Strut Bone Allograft Is Inadequate for Achieving Satisfactory and Lasting Correction in Neglected Infantile Tibia Vara: Results from a Cohort of 29 Patients. Journal of Clinical Medicine. 2024; 13(14):4261. https://doi.org/10.3390/jcm13144261

2024 Menozzi GC, Depaoli A, Ramella M, Alessandri G, Frizziero L, De Rosa A, Soncini F, Sassoli V, Rocca G, Trisolino G. High-Temperature Polylactic Acid Proves Reliable and Safe for Manufacturing 3D-Printed Patient-Specific Instruments in Pediatric Orthopedics—Results from over 80 Personalized Devices Employed in 47 Surgeries. Polymers. 2024; 16(9):1216. https://doi.org/10.3390/polym16091216

2023 Trisolino G, Depaoli A, Menozzi GC, Lerma L, Di Gennaro M, Quinto C, Vivarelli L, Dallari D, Rocca G. Virtual Surgical Planning and Patient-Specific Instruments for Correcting Lower Limb Deformities in Pediatric Patients: Preliminary Results from the In-Office 3D Printing Point of Care. Journal of Personalized Medicine. 2023; 13(12):1664. https://doi.org/10.3390/jpm13121664

2023 Menozzi GC, 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". Journal of Personalized Medicine. 2023; 13(11):1538. https://doi.org/10.3390/jpm13111538

2023 Ramella M, Depaoli A, Menozzi GC, Gallone G, Cerasoli T, Rocca G, Trisolino G. Recurrence and Complication Rates of Surgical Treatment for Blount's Disease in Children: A Systematic Review and Meta-Analysis. Journal of Clinical Medicine. 2023; 12(20):6495. https://doi.org/10.3390/jcm12206495

2023 Depaoli A, Magnani M, Casamenti A, Cerasoli T, Ramella M, Menozzi GC, Mordenti M, Rocca G, Trisolino G. Is the High Healing Index a Complication of Progressive Long Bone Lengthening? Observations from a Cohort of 178 Children Treated with Circular External Fixation for Lower Limb Length Discrepancy. Children. 2023; 10(10):1586. https://doi.org/10.3390/children10101586

2023 Depaoli A, Menozzi GC, Di Gennaro GL, 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. Journal of Personalized Medicine. 2023; 13(3):549. https://doi.org/10.3390/jpm13030549

2022 Alessandri G, Frizziero L, Santi GM, Liverani A, Dallari D, Vivarelli L, Di Gennaro GL, Antonioli D, Menozzi GC, Depaoli A, et al. Virtual Surgical Planning, 3D-Printing and Customized Bone Allograft for Acute Correction of Severe Genu Varum in Children. Journal of Personalized Medicine. 2022; 12(12):2051. https://doi.org/10.3390/jpm12122051

2022 Frizziero L, Trisolino G, Santi GM, Alessandri G, Agazzani S, Liverani A, Menozzi GC, Di Gennaro GL, Farella GMG, Abbruzzese A, et al. 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(15):7918. https://doi.org/10.3390/app12157918

2019 Frizziero L, Donnici G, Liverani A, Alessandri G, Menozzi GC, Varotti E. Developing Innovative Crutch Using IDeS (Industrial Design Structure) Methodology. Applied Sciences. 2019; 9(23):5032. https://doi.org/10.3390/app9235032

Date:

Signature: