Pietro Musoni

Contact:
- pietro.musoni@gmail.com
- LinkedIn
- WebSite

Personal details:
- Citizenship: *Italian*
- Native Language: *Italian*
- Spoken Languages: *English*

Curriculum Vitae - updated: October 30, 2026

Research Interests

- Geometry Processing, Deep Learning, Data analysis, AI for environmental data, predictive modelling, Computer Graphics and Computer Vision.

Research Profile

I am a Post Doctoral researcher at the University of Parma, working on a research project on the prediction of the behavior of the waters in floods by using AI techniques in collaborations with the department of Engineering and Architecture. In parallel I supervise a project of digital twins in packages transportation simulation through virtual physical simulation, in collaboration with local companies. I followed the University of Verona's Ph.D program in Computer Science, under the supervision of professor Umberto Castellani. In 2018 I graduated in Computer Science and Engineering at University of Verona. I work on 3D Animation, 3D Modelling, Deep Learning, Geometry Processing, 3D spectral shape analysis, Virtual Humans, and Cloth Physical simulation applied to industrial applications.

Academic Appointments

- **University of Parma,** Italy - Computer Science department *Oct 2023 - present*
  Post Doctoral researcher Advisor: Prof. Alessandro Dal Palù;
  Project: "Artificial intelligence applied on flood simulations"
- **University of Verona,** Italy - Computer Science department *Jan 2023 - Sep 2023*
  Post Doctoral researcher (9 months); Advisor: Prof. Umberto Castellani
  Project: "Deep Learning Generative Models for the virtual representation of 3D human body"
- **University of Milan - La Statale,** Italy - Computer Science department *Dec 2018 – Sep 2019*
  Research Fellow (10 months); Advisor: Prof. Marco Tarini
  Project: "Geometric and Dynamics modelling of 3D objects acquired from real-world environment"

Education

- **University of Genoa,** Italy – Computer Science department *July 2023*
  Attendance at Graduate School at Symposium on Geometry Processing 2023 (SGP).
- **University of Verona,** Italy – Computer Science department *Oct 2019 – Dec 2022*
  Ph.D in Computer Science (with scholarship)
  Thesis: A modeling-by-matching approach for clothed human animation.
  Advisor: Umberto Castellani
  Commission:
  Dr. Stefanie Wuhrer, INRIA - Grenoble Rhone-Alpes
  Prof. Nico Pietroni, University of Technology Sydney
  Dr. Luca Cosmo, University of Venice "Ca' Foscari"
  Dissertation: 16^{th} November, 2023
- **University of Milan,** Italy – Computer Science department *May 2019*
  Attendance at Graduate School at Symposium on Geometry Processing 2019 (SGP).
- **University of Verona,** Italy *2015 – 2018*
  Laurea Specialistica Degree (2 years degree, M.S. equivalent) in Computer Science and Engineering.
  Thesis: *Retrieval of geometric and kinematic properties of deformable objects from two-dimensional images.*

- **University of Verona,** Italy *2011 – 2014*
  Laurea Degree (3 years degree, B.S. equivalent) in Computer Science.

Professional Activities / Academic Service

- **Unity 3D developer** *Apr 2018 – Nov 2018*
  for CPM Manifold s.r.l., Create a 3d viewer using Unity 3d graphic engine, building 3d scenes of hydraulic projects from CAD files and creating a UI in order to manipulate the 3d scene with input devices. *Brescia, Italy*.

- **Internship** *Jan 2018 – Feb 2018*
  in VIPS (Vision, Image Processing and Sound) Lab, Working on the implementation of a prototype of a software for estimation of the 3d pose of a human body from a 2d image. The project has been done integrating Matlab and Python scripts, *Verona, Italy*.

- **Consultant** *Jan 2016 – Apr 2016*
  for MakarenlaLabs, Researching on songs recognition methods for Mradio project. The project consists on the development of a web radio analyzer that recognizes the songs on broadcast in real time for copyrights issues, *Verona, Italy*.

- **Web and Ionic Developer** *Nov 2014 – Dec 2015*
  for DNA Promotion s.r.l., Working on the production of a Web application and its mobile app in Ionic for the project youbiti.com which was meant for searching and offering work in show business *Milan, Italy*.

- **Internship** *Apr 2014 – Mar 2015*
  in VIPS (Vision, Image Processing and Sound) Lab, Working on the creation of new gestures for 3d objects interaction with Leap motion in virtual reality (Oculus Rift VR). I also implement tests with users in Unity3d to evaluate the the goodness of the created movements, *Verona, Italy*.

- **Mechanical department** *Jun 2010 – Jul 2010, Oct 2017 – Nov 2017*
  for Soc.Coop. INSIEME, Working in the Mechanical Department on the assembling of industrial Ovens. *Verona, Italy*.

- **Volunteer** *Jul 2019*
  SGP 2019, Symposium on Geometry Processing, *Milan, Italy*.

- **Volunteer** *May 2019*
  Eurographics 2019, *Genoa, Italy*.

- **Volunteer** *Sep 2018*
  3DV 2018, International Conference on 3D Vision, *Verona, Italy*.

- **Reviewer**
  - Computer Graphics Forum
  - Pacific Graphics
  - LOD conference
  - Computers & Graphics
  - The Visual Computer

Teaching

- **Fundamentals of Programming (Part A)- C++** *Oct 2026*
  Lecturer, Computer Science, University of Parma. Teaching responsibility: 48 hours, Enrollment: ~200 students., *Parma, Italy*.

- **Fundamentals of Programming (Part B)- C++ and Java** *Feb 2026*
  Lecturer, Computer Science, University of Parma. Teaching responsibility: 72 hours, Enrollment: ~200 students., *Parma, Italy*.

- **Python Bootcamp (For high school students)** *Jun 2024 and Jun 2025*
  Organizer and Lecturer, Computer Science Department, University of Parma. Teaching responsibility: 16 hours, Enrollment: ~15 students., *Parma, Italy*.

- **Elements of Computer Science (part 2)** *May 2025 – Jun 2025*
  Organizer and Lecturer, Pharmacy Department, University of Parma. Teaching responsibility: 24 hours, Enrollment: ~100 students., *Parma, Italy*.
- **Elements of Computer Science (part 1)** *Mar 2025 – Apr 2025*
  Organizer and Lecturer, Pharmacy Department, University of Parma. Teaching responsibility: 24 hours, Enrollment: ~100 students., *Parma, Italy*.
- **Elements of Computer Science** *Oct 2024 – Nov 2024*
  Organizer and Lecturer, Medicine Department, University of Parma. Teaching responsibility: 24 hours, Enrollment: ~15 students., *Parma, Italy*.
- **Elements of Computer Science** *Nov 2024 – Dec 2024*
  Organizer and Lecturer, Educational Sciences Department, University of Parma. Teaching responsibility: 15 hours, Enrollment: ~150 students., *Parma, Italy*.
- **Introduction to R** *Apr 2019 – May 2019*
  Organizer and Lecturer, Medicine Department, University of Milan - La Statale. Teaching responsibility: 16 hours, Enrollment: ~15 students., *Milan, Italy*.

Student Supervision

- **Daniele Ziaco** *2024-2025*
  B.Sc. thesis
- **Samuel Seligardi** *2024-2025*
  B.Sc. thesis, resulted in a publication at ICIAP 2025
- **Matteo Boroni Grazioli** *2024-2025*
  M.Sc. thesis, resulted in a publication at STAG 2025 and CEIG 2026
- **Francesco Bernin** *2025-2026*
  M.Sc. thesis

Scholarships

- **MIUR Scholarship** for pursuing a PhD in Computer Science at University of Verona. *2019*
  Funding: ~45k €, 3 years

Conferences

- ***CEIG 2026*** *June 2026*
  in Valencia, Spain where I presented the paper *Constraint-Based Modeling of Palletized Load Stability Under Crash Events*
- ***3DOR: 3D Object Retrieval 2025*** *Sep 2025*
  in London, UK where I presented the paper *Point cloud segmentation for 3D Clothed Human Layering*
- ***SGP: Symposium on Geometry Processing 2023*** *Jul 2023*
  in Genoa, Italy
- ***STAG: Smart Tools and Applications in Graphics 2022*** *Nov 2022*
  where I presented the paper *GIM3D: A 3D Dataset for Garment Segmentation*
- ***STAG: Smart Tools and Applications in Graphics 2021*** *Oct 2021*
  where I presented the paper *Reposing and retargeting unrigged characters with intrinsic-extrinsic transfer*
- ***SCA: Symposium on Computer Animation 2021*** *Sep 2021*
  where I presented the paper *A functional skeleton transfer*
- ***SGP: Symposium on Geometry Processing 2019*** *Jul 2019*
  where I served as student Volunteer
- ***Eurographics*** *May 2019*
  where I served as student Volunteer
- ***3DV: International Conference on 3D Vision*** *Sep 2018*
  where I served as student Volunteer

Skills

Technical specialties: Software design and implementation, with(in) a team. Expert programming in MATLAB, Python and use of libraries for Deep Learning and Data Science as PyTorch, Tensorflow (1 and 2), Scipy and Scikit-learn. Good programming in C/C++, Unity 3D, C# and R. Knowledge of 3D graphics tools as Blender, Maya, MeshLab.

Natural languages: Italian (*mother tongue*), English (*full professional proficiency*)

List of Publications

- Matteo Boroni Grazioli, **Pietro Musoni**, Alessandro Dal Palù, Constraint-Based Modeling of Palletized Load Stability Under Crash Events, CEIG, 2026, (presented at CEIG, Valencia).
- Samuel Seligardi, **Pietro Musoni**, Eleonora Iotti, Gianluigi Contesso, Alessandro Dal Palù, Physics-Based 3D Simulation for Synthetic Data Generation and Failure Analysis in Packaging Stability Assessment, Lecture Notes in Computer Science, 2026, (presented at the International Conference on Image Analysis and Processing, Rome).
- Davide Garavaso, Federico Masi, **Pietro Musoni**, Umberto Castellani, Point cloud segmentation for 3D Clothed Human Layering, Computers & Graphics, 2025, (presented at the 3D Object Retrieval Conference, London).
- **Pietro Musoni**, Simone Melzi, Umberto Castellani, Capturing and Modeling Real Cloth Deformations for Virtual Garment Design, Lecture Notes in Computer Science, 2025, (presented at FashionAI - ECCV Workshops 2024).
- **Pietro Musoni**, Simone Melzi, Umberto Castellani, GIM3D plus: A labeled 3D Dataset to design data-driven solutions for dressed humans, Graphical Models, 2023.
- **Pietro Musoni**, Simone Melzi, Umberto Castellani, GIM3D: A 3D Dataset for Garment Segmentation, Smart Tools and Applications in Graphics (STAG), 2022 (Presented by me).
- **Pietro Musoni**, Riccardo Marin, Simone Melzi, Umberto Castellani, Reposing and retargeting unrigged characters with intrinsic-extrinsic transfer, Smart Tools and Applications in Graphics (STAG), 2021 (Presented by me).
- **Pietro Musoni**, Riccardo Marin, Simone Melzi, A Functional Skeleton Transfer, ACM in Computer Graphics and Interactive Techniques (PACMCGIT), 2021 (Presented by me at the Symposium of Computer Animation).
- Simone Melzi, Riccardo Marin, **Pietro Musoni**, Filippo Bardon, Marco Tarini, Umberto Castellani. *Intrinsic/extrinsic embedding representation for functional remeshing of 3D shapes*. Computer & Graphics, 2020.
- Riccardo Marin, Simone Melzi, **Pietro Musoni**, Filippo Bardon, Marco Tarini, Umberto Castellani. *CMH: Coordinates Manifold Harmonics for Functional Remeshing*. The 12th Eurographics Workshop on 3D Object Retrieval (3DOR), 2019.
- Simone Melzi, Riccardo Marin, **Pietro Musoni**, Umberto Castellani, Marco Tarini. Visual Assessments of Functional Maps. Poster at Symposium on Geometry Processing (SGP), 2019 (Presented by me).
