# Marco Pegoraro

*Ph.D. Student*

m.pegoraro@hotmail.it
WebSite
Google Scholar
GitHub: Marco-Peg
Twitter: @MPegoraro42

## Research Profile

*As a Ph.D. student at Sapienza University of Rome, I am part of the GLADIA research group led by Emanuele Rodolà. With a background in Computer Science and Engineering from the University of Verona (2021), I specialize in Geometric Deep Learning, Geometry Processing, and 3D spectral shape analysis. My research interest lies in exploring the intersection of geometry processing and graph learning, with a particular emphasis on utilizing spectral techniques in graph analysis. I am proud to have received recognition for my Master's thesis with the Best Italian Master Thesis in Computer Graphics (Matteo Dellepiane award) at the Italian Chapter of EuroGraphics (STAG). In March, I'm going to join the research group of Alex Bronstein at Technion (Israel) to start a collaboration on spectral analysis applied to dynamic systems.*

## Research Interests

- Geometry Processing, Spectral shape Analysis, Geometric Deep Learning.

## List of Publications

- **Marco Pegoraro**, Riccardo Marin, Arianna Rampini, Simone Melzi, Luca Cosmo, Emanuele Rodolà, *Spectral Maps for Learning on Subgraphs*, Under review
- **Marco Pegoraro**, Simone Melzi, Umberto Castellani, Riccardo Marin, Emanuele Rodolà, *Localized Shape Modelling with Global Coherence: An Inverse Spectral Approach*, Symposium of Geometry Processing - published in Computer Graphics Forum [impact factor: 2.363], 2022
- Ariel Caputo, Andrea Giachetti, Franca Giannini, Katia Lupinetti, Marina Monti, **Marco Pegoraro**, Andrea Ranieri, *SFINGE 3D: A novel benchmark for online detection and recognition of heterogeneous hand gestures from 3D fingers' trajectories*, Computers & Graphics [impact factor: 1.821], 2020

## Education

- **Ph.D. in Computer Science** *1/10/2021 – present*
  Advisor: *Emanuele Rodolà*
  Sapienza University of Rome, Italy – Computer Science department
  As a Ph.D. student, my research focuses on exploring the relationship between geometry processing and graph learning. My current research directions encompass:
  - Developing spectral representations for graphs and subgraphs to address alignment problems.
  - Analyzing biomolecular interactions from a geometric perspective.
  - Investigating the use of spectral structures to represent graphs.
- **Master's Degree in Computer Science and Engineering** *2019 – 2021*
  Thesis: *Data-driven inverse spectral geometry: learning to generate shapes from multi spectra*
  Grade: *110/110 with honour*
  University of Verona, Italy
- **Bachelor Degree in Computer Science** *2016 – 2019*
  Thesis: *Gesture recognition in augmented reality applications using neural networks*
  Grade: *110/110 with honour*
  University of Verona, Italy

## International Research Visits

- **Technion - Israel Institute of Technology** *03/2023 - 09/2023*
  Research visit; supervisor: *Prof. Alex Bronstein*.

Rome, February 4, 2023,

## Teaching & Mentoring

- ***Teaching assistant* in Introduction to Algorithm** *03/2022 – 06/2022*
  Sapienza University of Rome, Italy - Computer Science department

---

## Professional Activities / Academic Service

- **Reviewer - Conferences**

  - ICML 2022
  - IJCAI 2022
  - NEURIPS NeuReps Workshop 2023

- **Reviewer - Journals**

  - ACM computing surveys

---

## Invited Talks and Seminars

- ***HARNESSING SPECTRAL REPRESENTATIONS FOR SUBGRAPH ALIGNMENT*** *3/11/2022*
  scientific seminar at the Ca' Foscari University of Venice hosted by *Prof. Luca Cosmo*

---

## Honors, Awards and Scholarships

- **"MOBILITÀ INTERNAZIONALE PHD 2022" grant for visiting period at Technion - Israel** *2022*
  Sapienza University of Rome
- **"Avvio alla Ricerca" grant for young researchers** *2022*
  Sapienza University of Rome
- **Matteo Dellepiane Award for best thesis in Computer Graphics** *2021*
  at the Italian Chapter of Eurographics (STAG 2021)

---

## Skills

**Technical specialties:** Software design and implementation, with(in) a team.
Expert programming in MATLAB, Python, and libraries for Deep Learning and Data Science, such as PyTorch, PyTorch Geometric, Deep Graph Library, Tensorflow (1 and 2), Keras, Pandas, Scipy, and Scikit-learn.
Good programming in C/C++ and Java. Knowledge of graphic tools such as Blender, Unity.
Experience using Virtual Reality tools such as Oculus Rift, HoloLens, and ZedMini.

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

---

Rome, February 4, 2023,