# Irene Tallini

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Based in: Rome, Italy (open to relocation)

## Education

**Sapienza University of Rome** — Rome
PhD Student. — Nov. 2020 - May 2024

- PhD Advisor: Prof. Emanuele Rodolà.
- Research interests: deep learning for **music generation**, **separation** and **note transcription**, through **diffusion models** and **transformers**. Statistical inference with neural optimal transport.
- Thesis Title: "Deep Learning Applied to Vector Quantile Regression and Music Generation and Separation"

**Technion - Israel Institute of Technology** — Haifa
Visiting PhD Student. — 1 March. 2023 - 31 August 2023

- PhD Advisor: Prof. Alex Bronstein.
- Research topic: vector quantile regression, a statistical inference method based on optimal transport.

**Sapienza University of Rome** — Rome
M.S. in Computer Science — Sep. 2017–Jan. 2020

- Thesis Advisor: Prof. Emanuele Rodolà
- Thesis title and summary: "Hamiltonian Spectrum Alignment and Applications to Partial Functional Correspondence". It presents a method for localizing a region of a 3D shape or reconstructing 2D shapes, exploiting only the information contained in the laplacian spectrum of the shapes.

**Sapienza University of Rome** — Rome
B.S. in Mathematics — Sep. 2013–Jul. 2017

- Thesis Advisors: Prof. Flavio Chierichetti and Prof. Alessandro Panconesi
- Thesis title and summary: "Probabilistic Algorithms for Dimensionality Reduction in Euclidean Spaces". Study of a generalization of Johnson-Lindenstrauss lemma for random projections.

## Publications

**Asterisk ($^*$) means equal contribution. I underlined my name if I presented the talk or poster.**

[1] M. Pegoraro, S. Vedula, A. Rosenberg, **I. Tallini**, E. Rodolà, and A. M. Bronstein, "Vector quantile regression on manifolds", in *Proceedings of **AISTATS***, 2024.

[2] **I. Tallini**$^*$, G. Mariani$^*$, E. Postolache$^*$, M. Mancusi$^*$, L. Cosmo, and E. Rodolà, "Multi-source diffusion models for simultaneous music generation and separation", in ***ICLR***, **Oral (Top 1.2%)**, 2024.

[3] **I. Tallini**$^*$, S. Vedula$^*$, A. Rosenberg, M. Pegoraro, E. Rodolà, Y. Romano, and A. M. Bronstein, "Continuous vector quantile regression", in ***ICML Workshop*** *on New Frontiers in Learning, Control, and Dynamical Systems*, 2023.

[4] **I. Tallini**, L. Iezzi, P. Gjanci, C. Petrioli, and S. Basagni, "Localizing autonomous underwater vehicles: Experimental evaluation of a long baseline method", in *Proceedings of **IEEE WCNEE 2021***, **Best Paper Award Runner Up**, 2021, pp. 443–450.

[5] A. Rampini, **I. Tallini**, M. Ovsjanikov, A. M. Bronstein, and E. Rodolà, "Correspondence-free region localization for partial shape similarity via hamiltonian spectrum alignment", in *2019 International Conference on 3D Vision, **3DV 2019***, **Best Paper Award**, IEEE, 2019, pp. 37–46.

## Work Experience

- **Sapienza University of Rome** May. 2024 - Aug. 2024
  *Research Contract*
- **WSENSE Srl.** Jul. 2020 - Oct. 2020
  *Underwater Internet of Things Researcher*
- **Sapienza University of Rome** Feb. 2020 - Jul. 2020
  *Underwater Internet of Things Researcher at SENSES Lab, Computer Science Dept.*

## Skills and Tools

- **Programming Languages:** Python, Matlab, C++ (decreasing order of competence).
- **Machine Learning Frameworks and Libraries:** Pytorch, Tensorflow, Jax, Pytorch Lightning, Pytorch Geometric, Wandb, Tensorboard, Hydra.
- **OS:** Linux, MacOS, Windows (decreasing order of competence).
- **Compute Facilities Used:** AWS, University Clusters, Personal server (assembled and maintained by me).
- **Miscellaneous:** Git, Github, LaTex, Arduino, ROS, ns3.