IRENE CANNISTRACI, PHD

Postdoctoral Researcher, ETH Zürich

📍 Zürich, Switzerland   🏠 Italian
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EDUCATION

Ph.D. in Computer Science,
Nov 2020 - Jan 2025
Sapienza University of Rome
Rome, Italy

Thesis: Improving Neural Networks Efficiency via Representation Similarities
Advisor: Prof. Emanuele Rodolà ↗
Grade: Summa Cum Laude

M.Sc. in Computer Science
Sep 2018 - Oct 2020
Sapienza University of Rome
Rome, Italy

Grade: 110/110 cum laude

B.Sc. in Computer Science
Sep 2013 - Mar 2017
Sapienza University of Rome
Rome, Italy

EXPERIENCE

Postdoctoral Researcher
Feb 2025 - now
ETH Zürich, Department of Computer Science
Zürich, Switzerland

Working on representation learning, multimodal machine learning, and healthcare in the MDS Lab, led by prof. Julia Vogt ↗

International Research Visit
Feb 2024 - July 2024
Institute of AI for Health, Helmholtz Munich
Munich, Germany

Working at the intersection of representation learning, geometric deep learning, and topological machine learning in the AIDOS Lab, led by prof. Bastian Rieck ↗

Teaching Assistant
Sept 2023 - May 2024
LUISS Guido Carli University
Rome, Italy

Lectured and mentored **40+ students** for the **Data Science in Action** MSc course, and designed and implemented the course lab sessions.

Teaching Assistant
Feb 2023 - Jun 2023
Sapienza University of Rome
Rome, Italy

Lectured and mentored **80+ students** for the **Deep Learning and Applied AI** ↗ MSc course.

Software Developer Engineer
Jun 2017 - Feb 2019
NTT Data
Rome, Italy

Developing multiple software for several international customers such as Enel and Telecom.

SELECTED INVITED TALKS

From Bricks to Bridges: Product of Invariances to Enhance Latent Space Communication
29 Feb 2024
Helmholtz AI, Helmholtz Munich
Munich, Germany

Hosted by Prof. Stefan Bauer. Slides here ↗

Unifying Representations by Infusing Invariances in the Latent Space
22 Jul 2023
Tübingen AI center
Tübingen, Germany

Communicating between latent spaces with limited semantic correspondence
31 Mar 2022
Trento AI Journal Club
Trento, Italy

Slides here ↗

Panelist for the Women in Data Science Event
24 Jun 2021
WiDS Rome Event
Virtual

AWARDS

WIML Travel Grant ↗
Dec 2024

Travel Grant for attending NeurIPS

ELISE Mobility Program for PhDs ↗
Mar 2024

Travel Grant of **€5,000** for junior researchers in the ELISE/ELLIS network

G-Research Grant for PhD Students ↗
Feb 2024

Research grant of **£2,000** for PhD students and postdocs in quantitative fields

Helmholtz Visiting Researcher Grant ↗
Feb 2024

Three months **fully-funded research stay** at the Helmholtz Munich (Apr-Jun)

WIML Travel Grant ↗
Dec 2023

Travel Grant for attending NeurIPS

Kickstarting Research Funding ↗
Nov 2022

Research grant of **€1,000** for young researchers and Ph.D. students

Women in Technology Scholarship ↗
Mar 2022

Grant of **US$8,000** for women of any age and nationality, pursuing an IT degree

PROFESSIONAL ACTIVITIES

- **Co-Organizer**
  ELLISxUniReps Speaker Series ↗
- **Co-Leader**
  CSNOW (ETH) ↗
- **Co-Organizer**
  UniReps@NeurIPS2024 ↗
- **Reviewer**
  ICML, ICLR, NeurIPS, Re-Align@ICLR2023, NeurReps, UniReps, New in ML, WiML @NeurIPS2023, ACM TKDD 2021
- **Volunteering**
  WiML@NeurIPS2023, NeurIPS2024

TECHNICAL SKILLS

Representation Learning   Multimodal
Deep Learning   Computer Vision
Foundation Models   Transformers
NLP   Git   Python   PyTorch

PUBLICATIONS

Peer reviewed

[1] D. Avola, **I. Cannistraci**, M. Cascio, L. Cinque, A. Fagioli, G. L. Foresti, E. Rodolà, and L. Solito. "MV-MS-FETE: Multi-view multi-scale feature extractor and transformer encoder for stenosis recognition in echocardiograms". In: *Computer Methods and Programs in Biomedicine* 245 (2024), p. 108037.

[2] **I. Cannistraci**, L. Moschella, M. Fumero, V. Maiorca, and E. Rodolà. "From Bricks to Bridges: Product of Invariances to Enhance Latent Space Communication". In: *The Twelfth International Conference on Learning Representations* **(ICLR 2024, spotlight, top 5%)**. 2024. URL: `https://openreview.net/forum?id=vngVydDWft`.

[3] M. Prata, G. Masi, L. Berti, V. Arrigoni, A. Coletta, **I. Cannistraci**, S. Vyetrenko, P. Velardi, and N. Bartolini. "Lob-based deep learning models for stock price trend prediction: a benchmark study". In: *Artificial Intelligence Review* 57.5 (2024), pp. 1–45.

[4] D. Avola, **I. Cannistraci**, M. Cascio, L. Cinque, A. Diko, D. Distante, G. L. Foresti, A. Mecca, and I. Scagnetto. "Real-Time GAN-Based Model for Underwater Image Enhancement". In: *International Conference on Image Analysis and Processing* **ICIAP 2023**. Springer. 2023, pp. 412–423.

[5] **I. Cannistraci**, L. Moschella, V. Maiorca, M. Fumero, A. Norelli, and E. Rodolà. "Bootstrapping Parallel Anchors for Relative Representations". In: *The First Tiny Papers Track at ICLR 2023*, **Tiny Papers @ ICLR 2023**, *Kigali, Rwanda, May 5, 2023*. Ed. by K. Maughan, R. Liu, and T. F. Burns. OpenReview.net, 2023. URL: `https://openreview.net/pdf?id=VBuUL2IWlq`.

[6] D. Crisostomi, **I. Cannistraci**, L. Moschella, P. Barbiero, M. Ciccone, P. Liò, and E. Rodolà. "From Charts to Atlas: Merging Latent Spaces into One". In: *NeurIPS 2023 Workshop on Symmetry and Geometry in Neural Representations* **(NeurReps @ NeurIPS 2023)** (2023). URL: `https://arxiv.org/abs/2311.06547`.

[7] D. Avola, **I. Cannistraci**, M. Cascio, L. Cinque, A. Diko, A. Fagioli, G. L. Foresti, R. Lanzino, M. Mancini, A. Mecca, and D. Pannone. "A Novel GAN-Based Anomaly Detection and Localization Method for Aerial Video Surveillance at Low Altitude". In: *Remote Sensing* 14.16 (2022), p. 4110.

Under Revision

[8] **I. Cannistraci**, E. Rodolà, and B. Rieck. "Detecting and Approximating Redundant Computational Blocks in Neural Networks". In: *arXiv preprint arXiv:2410.04941* (2024).

Preprints

[9] **I. Cannistraci**, M. Fumero, L. Moschella, V. Maiorca, and E. Rodolà. "Infusing invariances in neural representations". In: *Extended Abstract*, **TAG-ML workshop @ ICML 2023** (2023). URL: `https://openreview.net/pdf?id=mCm4iiNoNc`.

[10] M. Maranghi, A. Anagnostopoulos, **I. Cannistraci**, I. Chatzigiannakis, F. Croce, G. Di Teodoro, M. Gentile, G. Grani, M. Lenzerini, S. Leonardi, et al. "AI-based Data Preparation and Data Analytics in Healthcare: The Case of Diabetes". In: *arXiv preprint arXiv:2206.06182* (2022).

REFEREES

Prof. Emanuele Rodolà *ERC grantee*
- Sapienza University of Rome
- Homepage ↗

Prof. Bastian Rieck *ERC grantee*
- University of Fribourg
- Homepage ↗

Prof. Julia Vogt *ERC grantee*
- ETH Zürich
- Homepage ↗