

Irene Cannistraci

Postdoctoral Researcher, ETH Zürich

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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: With Honors

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. Vyetenko, 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. Distanto, 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
@ rodola@di.uniroma1.it

Prof. Bastian Rieck *ERC grantee*

📍 University of Fribourg
@ bastian@rieck.me

Prof. Julia Vogt *ERC grantee*

📍 ETH Zürich
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