IRENE CANNISTRACI, PHD

Postdoctoral Researcher, ETH Zurich

Zurich, 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: 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 Zurich, Department of Computer Science *Zurich, 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
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Prof. Julia Vogt ***ERC grantee***
ETH ZUrich
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