

My research pioneers the “latent space communication” concept between neural networks, which we recently introduced in [4]. Enabling new approaches to model reuse, compatibility analysis, and deep insights into their representations. Recognized by top research venues (e.g., ICLR, NeurIPS, ICML, ACL, CoSyNe) and being a central topic of the UniReps Workshop @ NeurIPS 2023, the community has just started using it to explore novel pathways in natural language processing, signal processing, computer vision, reinforcement learning, neuroscience, and beyond.

EDUCATION

Ph.D. in Computer Science

Sapienza University of Rome / Institute of Science and Technology, Austria

2021-now

Working on: Representation Learning & Latent Communication – **Advisors:** Prof. E. Rodolà, Prof. F. Locatello

MSc in Computer Science

Sapienza University of Rome – **Grade:** 110/110 with honors

2021

Thesis: Text-driven Adversarial Attacks on Social Graphs – **Advisors:** Prof. E. Rodolà, Dr. R. Marin

Relevant courses: NLP, CV, Web and Social Information Extraction, ML, DL & AI, Linguistics, Bioinformatics.

BSc in Computer Science

Sapienza University of Rome – **Grade:** 102/110

2019

Thesis work extended as company product and presented at ACL 2019 – **Advisor:** Prof. R. Navigli

RELEVANT WORK & RESEARCH EXPERIENCE

Babelscape.com

Rome, Italy

NLP Engineer (**Best Employee 2020 Nominee**)

Jun 2019 - July 2021

Improved the quality (+2% of the original metric for each module) and **doubled** the speed of the company’s multilingual NLP pipeline. Developed a novel approach for multilingual named entity recognition data creation (published at EMNLP 2021).

Causal Learning and Artificial Intelligence Group

Klosterneuburg, Austria

Visiting Researcher @ ISTA

Oct 2023 - Apr 2024

Collaborating with Prof. Francesco Locatello on formally framing the latent communication concept, and empirically with an extensive and first-of-its-kind Python library.

SELECTED PUBLICATIONS (FULL LIST ON GOOGLE SCHOLAR)

1. **ICLR 2023 (oral)** – “Relative representations enable zero-shot latent space communication” – L. Moschella*, V. Maiorca*, M. Fumero, A. Norelli, F. Locatello, and E. Rodolà
2. **ACL 2023 (main)** – “Accelerating Transformer Inference for Translation via Parallel Decoding” – A. Santilli, S. Severino, E. Postolache, V. Maiorca, M. Mancusi, R. Marin, E. Rodolà
3. **NeurIPS 2023** – “ASIF: Coupled Data Turns Unimodal Models to Multimodal without Training” – A. Norelli, M. Fumero, V. Maiorca, L. Moschella, E. Rodolà, and F. Locatello
4. **NeurIPS 2023** – “Latent Space Translation via Semantic Alignment” – V. Maiorca*, L. Moschella*, A. Norelli, M. Fumero, F. Locatello, and E. Rodolà
5. **ICLR 2024 (spotlight)** – “From Bricks to Bridges: Product of Invariances to Enhance Latent Space Communication” – I. Cannistraci, M. Fumero*, L. Moschella*, V. Maiorca, and E. Rodolà
6. **CoSyNe 2024** – “Multi-subject neural decoding via relative representations” – V. Maiorca, S. Azeglio, M. Fumero, C. Dominé, E. Rodolà, F. Locatello

COMMUNITY

Open Source Projects: WikiNEuRal (**3M+ total downloads**), nn-template (600+ ★); Latentis (20+ ★);

Reviewer activity: ICML (2024), ICLR (2024), NeurIPS (2023), *Outstanding Reviewer* for ICCV (2023), NeurReps (2022, 2023), UniReps (2023), TAG-ML (2023);

REFEREES

Emanuele Rodolà (homepage) – *Francesco Locatello* (homepage) – *Fabrizio Silvestri* (homepage)