

# Alessandro Lonardi

Assistant AI Researcher, Sony AI

Last update: July 25, 2024

Contact Information	Avda. del Portal de l'Àngel, 40, Ciutat Vella, 08002, Barcelona, Spain	🏠 Homepage: <a href="https://aleable.github.io">aleable.github.io</a> 🐙 Github: <a href="#">@aleable</a> , <a href="#">@aleable-sony</a> 🎓 Google Scholar: <a href="#">Alessandro Lonardi</a> ✉ E-mail: <a href="mailto:alessandro.lonardi.vr@gmail.com">alessandro.lonardi.vr@gmail.com</a>
Research	<b>Probabilistic Models</b> Generative models for graphs, Bayesian inference methods: belief-propagation algorithms for inference and community detection. <b>Knowledge Graphs and XAI</b> Knowledge graph embedding models, explainability in knowledge graph completion, generative models for knowledge graphs. <b>Mathematical Optimization, Optimal Transport, Routing Algorithms</b> Optimal transport: bridging theory and applications to machine learning and science, with scalable algorithms. Applications from machine learning tasks to engineering. <b>Complex Networks</b> Modeling of emergent phenomena in complex systems: graphs and hypergraphs.	
Experience	<b>Assistant AI Researcher</b> at Sony AI, ES <b>Guest Researcher</b> at the Max Planck Institute for Intelligent Systems, DE <b>Head, co-founder</b> at Commute, DE <b>Research Intern</b> at the Max Planck Institute for Intelligent Systems, DE	Jul, 2024 – Dec, 2024 Jan, 2024 – Aug, 2024 Oct, 2022 – Apr, 2023 Jan, 2020 – Aug, 2020
Education	<b>Max Planck Institute for Intelligent Systems - University of Tübingen, DE</b> <b>IMPRS-IS: International Max Planck Research School</b> <b>PhD</b> in Computer Science (magna cum laude) <b>Advisor:</b> Caterina De Bacco (Max Planck Institute for Intelligent Systems) <b>University of Padova, IT</b> <b>MSc</b> in Mathematical Engineering: Mathematical Modelling for Engineering and Science (cum laude) <b>BSc</b> in Physics	Sep, 2020 – Dec, 2023 Oct, 2015 – Jul, 2020
Coding & Tools	<b>Programming Languages (advanced, &gt; 7 years):</b> Python (Numpy, Scipy, Pandas, Matplotlib, Scikit-learn) <b>Programming Languages (intermediate):</b> Python (PyTorch), MATLAB, C++, Mathematica <b>Tools:</b> Git, Poetry, wandb, cluster computing management: HTCondor, $\text{\LaTeX}$ , HTML, CSS, scientific presentation suites, MacOS, Debian/Arch-based Linux distros, MS Windows	
Teaching	<b>Tübingen University:</b> Advanced Probabilistic Machine Learning and Applications. Master's program in Machine Learning (2 terms: 2020, 2021)	
Languages	Italian (native), English (fluent), German (intermediate, learning), Spanish (basic)	
Selected Recent Publications (from 7 peer-reviewed)	Ruggeri*, <b>Lonardi*</b> , De Bacco, Message-Passing on Hypergraphs: Detectability, Phase Transitions and Higher-Order Information, Journal of Statistical Mechanics: Theory and Experiment (2024) <a href="https://doi.org/10.1088/1742-5468/ad343b">10.1088/1742-5468/ad343b</a> <b>Lonardi</b> , De Bacco, Bilevel Optimization for Traffic Mitigation in Optimal Transport Networks, Physical Review Letters (2024), <a href="https://doi.org/10.1103/PhysRevLett.131.267401">10.1103/PhysRevLett.131.267401</a>	
Review Service	<b>Journals/Conference (# rev.):</b> PRE (1), J. of Phys. Comm. (3), Physica Scripta (2), SysDo 2024 (1)	
Talks	2 talks at Netsci 2023 (flagship conference in network science)   2 talks at academic seminars   4 talks at MPI IS scientific events	
Volunteering	University orientation for high schoolers: Career perspectives in AI, 2024, Verona, IT ( <a href="https://calabreselevi.edu.it">calabreselevi.edu.it</a> ) Volunteer for TRend in Africa Python Workshop 2022, online ( <a href="https://trendinafrica.org">trendinafrica.org</a> ) Volunteer for Pint of Science Italia 2016 – 2017, Padua, IT ( <a href="https://pintofscience.it">pintofscience.it</a> )	
Other relevant interests	Inference vs. mechanistic modeling in science, coding best practices, efficient problem-solving, personal finance, AI and art	