Emanuele Rimoldi

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EDUCATION

Massachusetts Institute of Technology Cambridge, Massachusetts, USA
Exchange Semester, CS and Math *Mar 2026 - Present*

- Research spanning multi-agent systems for scientific discovery, evaluation and benchmarking of AI Agents, statistical learning theory, reinforcement learning–based knowledge distillation, and LLM routing.

École Polytechnique Fédérale de Lausanne Lausanne, Switzerland
MSc in Data Science (Neuro-inspired AI and Machine Intelligence) *Sep 2023 - Sep 2026*

- Selected coursework: Theory of Machine Learning and Deep Learning, Optimization, Brain-computer interfaces, Computer Vision, Stochastic Calculus, NLP, Neural Signal Processing, Brain-like Computation.
- Additional graduate studies in Nuclear Engineering at École Polytechnique Fédérale de Lausanne, ETH Zurich & PSI.

Politecnico di Milano Milan, Italy
BSc in Applied Physics *Sep 2020 - Sep 2023*

- Selected coursework: Linear Algebra, Real and Functional Analysis, Probability and Statistics, Quantum Physics.

PREPRINTS & MANUSCRIPTS

E. Rimoldi, R. Neumarker, T. Poggio, D. Mitropolsky. *Uncovering the Turing Test's Latent Signal: Indistinguishability as a Reward*. Preprint available upon request.

D. Mitropolsky, R. Neumarker[*], **E. Rimoldi**[*], S. S. Hong, T. Poggio. *Generalizing the Turing Test to Interactive Agents*. Submitted to ICLR 2027. [*]Equal contribution. [Preprint].

L. Torti[*], **E. Rimoldi**[*], T. Galanti, T. Poggio, P. Beneventano. *Embedding Geometry Shapes LLM Routing: Tracing Failure Modes and Improving Generalization*. Submitted to AISTATS 2027. [*]Equal contribution. [Preprint].

P. Beneventano et al. (incl. **E. Rimoldi**). *Agent Systems for Academic Research Automation*. Accepted to the AI for Science Workshop at ICML 2026. [Preprint].

RESEARCH & MACHINE LEARNING EXPERIENCE

Researcher Cambridge, Massachusetts, USA
Massachusetts Institute of Technology *Mar 2026 - Present*

- Developed a knowledge distillation framework based on reinforcement learning that rewards student responses a stronger teacher attributes to itself, without an external verifier, ground-truth answers, or teacher-generated solutions during training.
- Contributed, under the supervision of Tomaso Poggio and Florent Krzakala, to a task- and dataset-agnostic framework comparing AI agents via pairwise indistinguishability [Preprint].
- Analyzed geometric limitations of semantic embeddings for LLM routing, improving generalization to unseen tasks using hidden-state representations [Preprint].

Machine Learning Intern Lausanne, Switzerland
Logitech Europe SA *Aug 2025 - Feb 2026*

- Pre-trained and post-trained transformer-based EEG foundation models on large clinical datasets (TUH, > 1 TB) within the Cognitive Science Team in the CTO Office, supervised by Jonathan Dan.
- Engineered spatial embedding modules to incorporate geometric and physics-based priors into learned EEG representations, improving performance on binary and multiclass classification tasks; manuscript in preparation.

AI Research Intern Martigny, Switzerland
Idiap Research Institute *Jun 2025 - Jul 2025*

- Implemented spiking neural-network (SNN) text-to-speech (TTS) architectures at the Audio Inference Group, advised by Dr. Philip N. Garner.
- Replaced FastSpeech 2 decoder FFN blocks with AdLIF spiking modules and evaluated the resulting architecture on LJSpeech, validating the feasibility of integrating spiking modules into a conventional decoder.

Research Intern Geneva, Switzerland
Campus Biotech *Jul 2024 - Sep 2025*

- Led research at the Translational Neural Engineering (TNE) Lab and Hummel Lab on thermo-tactile neuroprosthetic feedback and MRI/eye-tracking-compatible fatigue assessment, advised by Silvestro Micera and Friedhelm C. Hummel.
- Designed and led a 15-participant thermo-tactile sensory-integration study for upper-limb bionic prostheses; tactile stimulation redirected thermal percepts in 85% of integration cases toward regions lacking baseline thermal perception, reconstructing bimodal feedback.
- Built a multimodal fatigue-assessment protocol combining tTIS, eye tracking, pupilometry, and MRI to quantify behavioral and region-specific neural correlates.

AWARDS & FUNDING

RealPage Challenge, Hack-Nation 6th Global AI Hackathon (2026): 1st place for RealDoor among 2,000+ builders across 60+ countries.

Nova 111 Student List 2026: listed among Italy's 10 most promising U25 students in Mathematics, Data Analytics & Physics; 3% acceptance rate.

LeadTheFuture: selected for Italy's high-potential STEM student network; 13% acceptance rate.

Zeno Karl Schindler Foundation: $15k grant for talented students enrolled at Swiss universities to conduct scientific research at top institutions.

Politecnico di Milano: Best Freshman Prize; Academic Merit Scholarship, 2020-21, 2021-22, 2022-23.

TEACHING

Teaching Assistant Lausanne, Switzerland - Milan, Italy
EPFL - Swiss Plasma Center, Politecnico di Milano *2021 - Sep 2024*
TA for graduate/undergraduate courses: *Nuclear Fusion and Plasma Physics* (PHYS-445), Mathematical Analysis, and Experimental Physics.

TECHNICAL SKILLS

Programming: Python (PyTorch, TensorFlow, Hugging Face), MATLAB, C/C++, R.
Tools: Git, LaTeX, Docker, SLURM, Weights & Biases.
Languages: Italian (native), English (full professional), Spanish (intermediate), French (basic).