Samy **Badreddine**

Research Scientist · PhD student

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Education

University of Trento *Trento, Italy*

PhD in Neuro-Symbolic AI *Nov. 2023 - Present*

- Supervisor: prof Luciano Serafini
- Collaboration between the University of Trento, the Bruno Kessler Institute and Sony AI.

Ecole polytechnique de Bruxelles (ULB) *Brussels, Belgium*

Master in Computer Science and Engineering (AI Specialization) *Sep. 2017 - Jun. 2019*

Ecole polytechnique de Bruxelles (ULB) *Brussels, Belgium*

Bachelor in Civil Engineering *Sep. 2014 - Jun. 2017*

Research in Industry

Sony AI *Barcelona*

Research Scientist *Oct. 2023 - Present*

- Research at the intersection of neurosymbolic AI and Generative AI.
- Focus on applications in Knowledge Graph Prediction.

Sony AI *Tokyo*

AI Engineer *May 2020 - Sep. 2023*

- Conducted foundational research in neurosymbolic AI, which were published in an AI Journal paper on Logic Tensor Networks, as well as in book articles and workshop papers.
- Contributed to a team project for hypothesis generation in biomedical domains using link prediction in temporal graphs.
- Co-developed an ingredient pairing system. Successfully built a functional prototype app that was tested by professional chefs in real-world scenarios.

Sony Computer Science Laboratories *Tokyo*

Machine Learning Research Intern *Summer 2018 and 2019*

- Conducted research in Transfer Learning in Reinforcement Learning (RL) and Semantic Image Interpretation with a focus on neurosymbolic AI under the mentorship of Dr. Michael Spranger.

Selected Publications

Journals

2022 **Logic Tensor Networks**, S. Badreddine, A.A. Garcez, L. Serafini, M. Spranger, *Artificial Intelligence*. (Leading AI Journal, Impact Factor 14.05)

2023 **Link prediction for hypothesis generation: an active curriculum learning infused temporal graph-based approach**, U. Akujuobi, P. Kumari, J. Choi, S. Badreddine, K. Maruyama, S. K. Palaniappan, T. R. Besold, *Artificial Intelligence Review*. (Impact Factor 10.7)

2023 **Comparing molecular representations, e-nose signals, and other featurization, for learning to smell aroma molecules**, T. Debnath, S. Badreddine, P. Kumari, M. Spranger, *PLOS One*. (Impact Factor 3.75)

Conferences and Workshops

2024 **ULLER: A Unified Language for Learning and Reasoning**, S. Badreddine and M. Spranger, *Spotlight presentation and tutorial at NeSy'2024 (International Conference on Neural-Symbolic Learning and Reasoning)*

2023 **What's Wrong with Gradient-based Complex Query Answering?**, O. El Harzli, S. Badreddine, T. R. Besold, *Oral presentation at NeSy'2023* – **Best Paper Award**

2023 **Recipe 2.0: Information Presentation for AI-Supported Culinary Idea Generation**, A. H.C. Hwang, S. Badreddine, F. Gifford, and T. R. Besold, *Oral presentation at ICCC'23 (International Conference on Computational Creativity)*