Luisa Werner
Research Associate - INRIA Grenoble Alpes

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🌐 /luisawerner.github.io

I am a Research Associate (Postdoc) at the INRIA center of the Université Grenoble Alpes, working on machine learning. My main research interest is neuro-symbolic integration, which aims to increase the reliability and performance of machine learning models by exploiting logics.

⚙ Skills

Research Topics   Neuro-Symbolic Reasoning | Deep Learning | Graph Neural Networks | Explainable AI | Knowledge Graphs

Programming Languages   Python | Latex | Java | C++

Deep Learning Frameworks   PyTorch | PyTorch Geometric | Tensorflow | Keras | Weights & Biases

Languages   English *fluent* | French *fluent* | German *native*

🎓 Education

PhD at Université Grenoble Alpes & INRIA   10/2020 – 12/2024
Neuro-Symbolic Integration of Learning and Reasoning on Graphs | supervised by Pierre Genevès & Nabil Layaïda   *Grenoble, France*

Master of Science at Karlsruhe Institute of Technology   04/2017 – 09/2020
Computer Science | Focus on Deep Learning, Computer Vision, Natural Language Processing   *Karlsruhe, Germany*

Bachelor of Science at Karlsruhe Institute of Technology   10/2013 – 04/2017
Economics Engineering | Focus on Statistics   *Karlsruhe, Germany*

Johann Schöner Gymnasium   09/2005 – 09/2013
Abitur (Baccalauréat)   *Karlstadt, Germany*

⚙ Professional Experience

Research Associate (Postdoc) in the Tyrex Team at INRIA Grenoble   01/2024 – current
Neuro-Symbolic Integration of Learning and Reasoning on Graphs   *Grenoble, France*

Deutsche Bundesbank (German Central Bank)   11/2018 – 03/2019
Supported the development of a financial database with machine learning applications *Frankfurt, Germany*

💼 Publications

∗ see Google Scholar for an up-to-date list.

- T. Valentin, **L. Werner**, P. Genevés, N. Layaïda. "On Scaling Neurosymbolic Programming through Guided Logical Inference." Preprint 2025.

- **L. Werner**. "Neural-Symbolic Integration of Knowledge Extraction and Reasoning on Graph-Structured Data. PhD Thesis. 2024.

- **L. Werner**, N. Layaïda, P. Genevés, J. Euzenat, D. Graux. "Reproduce, Replicate, Reevaluate. The Long but Safe Way to Extend Machine Learning Methods". AAAI Conference on Artificial Intelligence. 2024.

- **L. Werner**, N. Layaïda, P. Genevés, S. Chlyhah. "Knowledge Enhanced Graph Neural Networks". IEEE 10th International Conference on Data Science and Advanced Analytics. 2023.

- **L. Werner**, N. Layaïda, P. Genevés, S. Chlyhah. "Knowledge Enhanced Graph Neural Networks for Graph Completion". The 1st International Workshop on Knowledge-Based Compositional Generalization at IJCAI 2023. 2023.

- **L. Werner**. Predictive Analytics by Inferring Structure from Electronic Health Records. Masterthesis. 2020.

- A. Bartols, C. Bormann, **L. Werner**, M. Schienle, W. Walther, C. Dörfer. "A retrospective assessment of different endodontic treatment protocols." PeerJ. 2020.

🏆 Awards and Scholarships

Best Second Year PhD Presentation @ MIAI Days   12/2022
When Deep Learning Meets Logic: Neuro-Symbolic Learning and Reasoning   *Grenoble, France*

Erasmus Scholarship   11/2019 - 03/2020
Research internship at INRIA Grenoble Alpes.   *Grenoble, France*

Scholar of Bosch Female Talents @ KIT   01/2018 - 01/2019
A scholarship of the company Bosch, which supports excellent female students with a mentoring program.   *Karlsruhe, Germany*

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💬 Talks and Conferences

Talk at TOTH Seminar   12/2024
Title: Neuro-Symbolic AI. On the Integration of Neural Networks and Reasoning. (invited)   *Grenoble, France*

Talk at Conference AAAI   02/2024
Title: Reproduce. Replicate. Reevaluate. The long but safe way to extend machine learning models. (oral and poster)   *Vancouver, Canada*

Talk at Doctoral Consortium AAAI   02/2024
Title: Neuro-Symbolic Integration for Reasoning and Learning on Knowledge Graphs. (oral and poster)   *Vancouver, Canada*

Talk at Conference DSAA   10/2023
Title: Knowledge Enhanced Graph Neural Networks. (oral)   *Thessaloniki, Greece*

Talk at the MIAI Days   12/2022
Title: When Deep Learning Meets Logic: Neuro-Symbolic Learning and Reasoning.   *Grenoble, France*

Talk at PhD Forum of ECML-PKDD   09/2022
Title: Neuro-Symbolic Integration on Knowledge Graphs.   *Grenoble, France*

Talk at Toulouse 3AI Workshop   11/2021
Title: Neuro-Symbolic Integration - Bridging the Gap between Neural Networks and Logic.   *Toulouse, France*

👥 Supervised Students

Alexandre Lagier (ENS Lyon)   06/2024 - 08/2024
Logic Tensor Networks on Large-scale Relational Data   *Grenoble, France*

Thomas Valentin (ENS Paris)   07/2024 - 09/2024
Approximate weighted model counting for neural probabilistic reasoning   *Grenoble, France*

Pauline Attal (Université Lyon)   02/2023 - 07/2023
Improving the Reliability of Neural Network with Neuro-symbolic Integration on Heterogeneous Graphs   *Grenoble, France*

🎮 Other Achievements

7th at the U23 World Rowing Championships   09/2016
in the category Lightweight Women Single Scull.   *Rotterdam, Netherlands*

Bronze Medal at the U23 World Rowing Championships   07/2015
in the category Lightweight Women Quadruple Scull.   *Plovdiv, Bulgaria*