Tobias **LADNER**
Curriculum Vitae

Current Position

since 02/2022	**Ph.D. Student**
	📍 Technical University of Munich, Germany
	Topic: Formal Verification of Neural Networks

TUM

Education

10/2019 – 12/2021	**Master of Science**
	📍 Technical University of Munich, Germany
	Computer Science · with high distinction

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Winter 2020	**Erasmus Exchange Semester**
	📍 University of Sussex, United Kingdom
	Computer Science

US

10/2016 – 08/2019	**Bachelor of Science**
	📍 Technical University of Munich, Germany
	Computer Science · with merit

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Selected Publications

[1] **Fully Automatic Neural Network Reduction for Formal Verification**. Tobias Ladner and Matthias Althoff. *TMLR*. 2025.

[2] **Explaining, Fast and Slow: Abstraction and Refinement of Provable Explanations**. Shahaf Bassan*, Yizhak Yisrael Elboher*, Tobias Ladner*, Matthias Altoff, and Guy Katz. *ICML*. 2025.

[3] **Formal Verification of Graph Neural Networks with Uncertain Node Features and Uncertain Graph Structure**. Tobias Ladner, Michael Eichelbeck, and Matthias Althoff. *TMLR*. 2025.

[4] **Automatic Abstraction Refinement in Neural Network Verification using Sensitivity Analysis**. Tobias Ladner and Matthias Althoff. *HSCC*. 2023.

[5] **Exponent Relaxation of Polynomial Zonotopes and Its Applications in Neural Network Verification**. Tobias Ladner and Matthias Althoff. *AAAI*. 2024.

[6] **Set-Based Training for Neural Network Verification**. Lukas Koller, Tobias Ladner, and Matthias Althoff. *arXiv (under review)*. 2024.

Professional Contributions and Activities

· Administrator of toolbox CORA

· Repeatability co-chair of ARCH-COMP (2023-2025) and VNN-COMP (2025)

· Invited talk at Munich Datageeks and at University of Aalborg: "Formal Verification of Neural Networks in Safety-Critical Environments"

· Hobby projects: Android Reddit Wallpaper, Covid Data Visualization

Further Work Experiences

Various internships as a software engineer: INVENOX (2017), ARZ (2013-2016), and AKH (2012). Tutor at Technical University of Munich (2018, 2019). Civil service at Austrian Red Cross (2015, 2016). Ski instructor (holidays 2010-2020).

About Me
Tobias Ladner
📍 Munich, Germany

Specialization
AI Safety,
Machine Learning,
Formal Verification,
Set-Based Computing

Programming
matlab, python,
latex, java, c++,
html, css, js

Languages
German (native),
English (C2)

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○ GitHub