Reijo Jaakkola

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Profile

PhD candidate in Mathematics (expected early 2026) with expertise in machine learning, explainable AI, and computational complexity theory. Strong background in mathematical logic, probability theory, and software engineering, with hands-on experience developing interpretable ML algorithms. Skilled in bridging theory and applications, with publications in top AI and logic venues and proven ability to deliver practical software solutions.

Skills

- Programming: Python, C++, C, C#, JavaScript, Qt, Angular
- ML & Data: PyTorch, scikit-learn, pandas, numpy, rule-based ML
- Google Advanced Data Analytics certificate
- Tools: Git, Linux, LaTeX

Experience

Doctoral Researcher — Tampere University
Sep 2021 – Dec 2025 (expected)

- Research on explainable AI, mathematical logic, and computational complexity.
- Developed rule-based classifiers (rsclassifier library, published on PyPI).
- Published 10+ peer-reviewed papers, including in *Journal of Artificial Intelligence Research*.

Software Engineer — Bitwise Oy
May – Aug 2021

- Developed for embedded Linux platforms using C++ and Qt.
- Contributed to frontend development with Angular for a web application.

Software Engineer — CADMATIC Oy
May 2019 – Sep 2020

- Co-developed a new 2D-platform for CADMATIC's drawing tools.
- Re-implemented legacy functionalities in a user-friendly and efficient way using C++.

Research Assistant — University of Helsinki / Tampere University
2018 – 2021

- Conducted research in mathematical logic and computational complexity.
- Developed online exercises in mathematical logic and graph theory (STACK environment).

Selected Projects

RSCLASSIFIER (PyPI): Machine learning library for learning interpretable rule set classifiers. Efficient, transparent, and user-friendly.
https://pypi.org/project/rsclassifier

Extended Cont–Bouchaud Model (GitHub): Dynamic agent-based financial market model incorporating stochastic volatility and jump diffusion.
https://github.com/ReijoJaakkola/Cont-Bouchand-model

Selected Publications

1. *Explainability via Short Formulas: the Case of Propositional Logic with Implementation*, Journal of Artificial Intelligence Research.
2. *Relating Description Complexity to Entropy*, Journal of Computer and System Sciences.
3. *Interpretable Classifiers for Tabular Data via Feature Selection and Discretization*, Workshop on Data meets Applied Ontologies in Explainable AI, 2024.
4. *Short Boolean Formulas as Explanations in Practice*, European Conference on Logics in Artificial Intelligence, 2023.

Awards

- Ernst Lindelöf Prize (2022) – Best Master's thesis in mathematics in Finland.
- Best Tech Solution – Unlocking ESG Insights (2023), Hanken Quantum Hackathon.

Education

PhD in Mathematics — Tampere University (Expected early 2026)
Title: ***Results on Computational Logics: Expressivity, Model Theory and Complexity***

MSc in Mathematics — Tampere University, 2021

BSc in Mathematics — Tampere University, 2020