Reijo Jaakkola- Curriculum Vitae

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Education

- 23 April 2021, Master of Science, Master's Programme in Mathematics, Tampere University, Finland
- 29 April 2020, Bachelor of Science, Degree Programme in Mathematics and Statistics, Tampere University, Finland

Language Skills

- Finnish – native
- English – excellent (C1)
- Swedish – moderate (B1)

Publications

1. **Complexity of Polyadic Boolean Modal Logics: Model Checking and Satisfiability** Computer Science Logic 2023, February 13-16, 2023, Warsaw (Poland)
2. **Complexity Classifications via Algebraic Logic** (Joint work with Antti Kuusisto.) Computer Science Logic 2023, February 13-16, 2023, Warsaw (Poland)
3. **Explainability via Short Formulas: the Case of Propositional Logic with Implementation** (Joint work with Tomi Janhunen, Antti Kuusisto, Masood Feyzbakhsh Rankooh and Miikka Vilander.) 29th RCRA International Workshop on "Experimental Evaluation of Algorithms for solving problems with combinatorial explosion", September 5, 2022, Genova (Italy)
4. **Towards Model Theory of Ordered Logics: Expressivity and Interpolation** (joint work with Bartosz Bednarczyk), 47th International Symposium on Mathematical Foundations of Computer Science, August 22-26, 2022, Vienna (Austria)
5. **Uniform Guarded Fragments**, 25th International Conference on Foundations of Software Science and Computation Structures, April 2-7, 2022, Munich (Germany)
6. **Ordered Fragments of First-Order Logic**, 46th International Symposium on Mathematical Foundations of Computer Science, August 23-27, 2021, Tallinn (Estonia)

Awards

1. **2022 Ernst Lindelöf Prize**, awarded for the best master's thesis in mathematics written in Finland during the academic year 2021-2022.

Current and future employments

Doctoral researcher at Tampere University, September 2021 → August 2025

I was fortunate enough to obtain a four-year founding for my doctoral studies. I will be studying the computational complexity and model theory of various logics (including fragments of first-order logic and extensions of first-order logic). I am also planning to study questions related to average-case complexity of algorithms that solve computational problems that arise naturally in the context of formal logics.

Previous employments

Content Producer at MAOL ry, March 2021 → December 2021

I organized a math club (matikkakerho) for students of various level and background (elementary school students and high school students). The purpose of the club was to go through several topics in elementary mathematics that are not covered in the standard school curriculum. We met once every two weeks.

Software Engineer at Bitwise Oy, May →August 2021

Started by doing software development for embedded linux platforms using mostly C++ and Qt, ended up doing frontend with Angular for a web application.

Research Assistant at University of Helsinki, March 2021 → April 2021

During this employment I focused on preparing my article on ordered fragments of first-order logic. I also developed, together with Academy Research Fellow Antti Kuusisto, background theory for new computationally well-behaved logics that have access to recursive definitions. The position was funded by the Academy of Finland project, Theory of Computational Logics, grant numbers 324435 and 328987.

Software Engineer at CADMATIC Oy, May 2019 → September 2020

Together with my team I developed a new 2D-platform for the drawings of CADMATIC software. My tasks consisted mostly of re-implementing functionalities that were present in the old 2D-platform, but in a more user-friendly way. Programming was done mostly in C++, while following the principles of object-oriented programming.

Research Assistant at Tampere University, November 2018 → September 2020

I made exercises using STACK-environment for courses on graph theory and mathematical logic. One of the bigger projects was to make exercises where the students are asked to make logical derivations in a given formal deduction system. I implement such exercises for propositional and first-order logic. These exercises were later employed successfully in two courses that revolved around the aforementioned logics. The position was funded by the ÄlyOppi-project.

Teaching

I have been running exercise classes for various courses at Tampere University, including Analyysi A, Analyysi B, Lineaarialgebra 1B, Lauselogiikka and Modaali- ja predikaattilogiikka.