Michael Rawson

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Brief

I am a computer scientist working in the area of automated theorem proving. My main goal is to build computer systems that can reason effectively, but also *learn* from past experience. I keep a log of my activities online, and my publications are indexed by Google Scholar.

Timeline

2021–	**Projektassistent**, *TU Wien*, Austria
2020–21	**Research Associate**, *University of Manchester*, UK
2017–21	**PhD**, *University of Manchester*, UK
2014–17	**BA Computer Science**, *University of Cambridge*, UK

Research

My main line of research applies machine learning to theorem proving, tackling related problems such as learning from syntactic data. I am also interested in the theory and practice of first-order reasoning, connection and tableau methods, satisfiability solvers and their applications, parallel and distributed theorem proving, evaluation of theorem provers, software verification and security, and interactive theorem proving. I maintain VAMPIRE, a world-class theorem prover.

Teaching

2021–	Ran a course in which students present a paper of their choice. Assisted with supervision of research students.
2017–21	Teaching assistant for a variety of undergraduate and graduate courses. Outreach lectures and activities.
2014–17	Volunteer with STIMULUS, working in local schools.

Selected Activities

2024	Artefact evaluation co-chair, Tools and Algorithms for the Construction and Analysis of Systems
2023	Co-chair, International Workshop on the Implementation of Logics
	Invited talk at the Joint EuroProofNet Workshops on Practical Aspects of Machine Learning in Theorem Proving and Dataset Generation for Data-Deficient Domains
	Committee for the VCLA Student Awards
	Program committee, International Conference on Automated Reasoning with Analytic Tableaux and Related Methods
2022	Invited talk at the Conference on Artificial Intelligence and Theorem Proving

Selected Publications

2023   *CheckMate: Automated Game-Theoretic Security Reasoning.* Lea Salome Brugger, Laura Kovács, Anja Petković Komel, Sophie Rain, Michael Rawson.

Non-Classical Logics in Satisfiability Modulo Theories. Clemens Eisenhofer, Ruba Alassaf, Michael Rawson, Laura Kovács.

Lemmas: Generation, Selection, Application. Michael Rawson, Christoph Wernhard, Zsolt Zombori, Wolfgang Bibel.

Superposition with Delayed Unification. Ahmed Bhayat, Johannes Schoisswohl, Michael Rawson.

SAT-based Subsumption Resolution. Robin Coutelier, Laura Kovács, Michael Rawson, Jakob Rath.

2022   *The* Rapid *Software Verification Framework.* Pamina Georgiou, Bernhard Gleiss, Ahmed Bhayat, Michael Rawson, Laura Kovács, Giles Reger

2021   *A Multithreaded* Vampire *with Shared Persistent Grounding.* Michael Rawson, Giles Reger.

On Evaluating Theorem Provers. Michael Rawson, Giles Reger.

lazyCoP: Lazy Paramodulation meets Neurally-Guided Search. Michael Rawson, Giles Reger.

Eliminating Models during Model Elimination. Michael Rawson, Giles Reger.

2020   *Directed Graph Networks for Logical Reasoning.* Michael Rawson, Giles Reger.

2019   *A Neurally-Guided, Parallel Theorem Prover.* Michael Rawson, Giles Reger.