Michael Rawson

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Timeline

2025– **New Frontiers Fellow**[1], *University of Southampton*, UK
2021–25 **Projektassistent**[2], *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 Interests

I am most interested in the theory and practice of automated theorem proving for classical first-order logic, including machine-learned heuristic methods and proof reconstruction. I have also applied automated reasoning to areas including security, protocol design, verification, and interactive theorem proving.
I also develop the world-class automated theorem prover Vampire with an international team. Vampire has seen widespread use in many areas, particularly as automation for interactive theorem provers and a backend for verification, but recently it has begun to be used standalone in some areas of research mathematics, notably algebra. Terence Tao's recent Equational Theories Project made "extensive use" of Vampire and other systems like it.

Awards

2025 Learning to do Math with Vampires and Spiders funded by the Renaissance Philantrophy/XTX Markets AI for Math Fund, with Andrei Voronkov at the University of Manchester. USD 927,000.
2025 Distinguished paper at CAV.
2017–20 Doctoral study funded by the School of Computer Science.

Organisation

2026 SAT/SMT/AR summer school, co-chair
2023– International Workshop on the Implementation of Logics (IWIL), co-chair
2023– Vampire Workshop, co-organiser
2025 EuroProofNet Workshop on Theorem Proving and Machine Learning in the age of LLMs, co-organiser
2024 EuroProofNet Workshop on Alignment of Proof Systems and Machine Learning, co-organiser

[1] permanent position with responsibilities similar to a lecturer
[2] postdoctoral research position

2024 Tools and Algorithms for the Construction and Analysis of Systems (TACAS), artefact evaluation co-chair

Program Committees

2022–25 Conference on Artificial Intelligence and Theorem Proving (AITP)

2024–25 Workshop on Composite AI (CompAI)

2023, 2025 Symposium on Symbolic and Numeric Algorithms for Scientific Computing (SYNASC)

2024 Workshop on Practical Aspects of Automated Reasoning (PAAR)

2023–24 VCLA Student Awards

2023 International Conference on Automated Reasoning with Analytic Tableaux and Related Methods (TABLEAUX)

2023 Automated Reasoning with Connection Calculi (AReCCa)

2021 Workshop on Parallel and Distributed Automated Reasoning (PDAR)

Doctoral Examination

2025 Gonçalo Araújo, NOVA Lisbon, jury member

Student Supervision

2025– Alistair Sirman, PhD co-supervision

2025–26 Joe Hall, part III individual project *Automated Finite Model Building for First-Order Logic*

Teaching

2026 Formal Specification and Verification — 10 lectures, coursework and examination design of new undergraduate course, ca. 300 students

2025–26 Postgraduate Certificate in Academic Practice

2024 Formal Methods Seminar — small group reading research papers

2024 lecturing at the SAT/SMT/AR Summer School

2017–21 teaching assistant, demonstrating and marking various undergraduate and postgraduate courses

2019 "summer school" outreach lectures and activities for sixth form students

2014–2017 STIMULUS volunteer in local schools

2016 designed second-year undergraduate computer graphics practical coursework

Invited Talks

2025 *Automated Reasoning for the Working Mathematician.* Workshop: AI Transforms Math Research, Augsburg

2023 *Deploying Neural Models for Theorem Proving.* Joint EuroProofNet Workshops, Prague

2022 *Machine Learning for Theorem Proving: What I Wish I had Known 5 Years Ago.* Conference on Artificial Intelligence and Theorem Proving, Aussois.

Research Visits

2022 Scheidegg, Germany. Wolfgang Bibel, Christoph Wernhard, Zsolt Zombori. Use of lemmata in connection systems.

2019 CIIRC Prague, Martin Suda and Josef Urban. Learning-guided automated theorem proving.

Selected Publications

A complete list is available on my homepage.

For some readers' convenience, the CORE rankings are as follows.
A* AAAI, CAV, CCS, S&P
A CADE, IJCAR, OOPSLA
B FMCAD, LPAR, TABLEAUX

2025 *Divide and Conquer: a Compositional Approach to Game-Theoretic Security.* Ivana Bocevska, Anja Petković Komel, Laura Kovács, Sophie Rain, Michael Rawson. (OOPSLA)

Constraint Learning for Non-Confluent Proof Search. Michael Rawson, Clemens Eisenhofer, Laura Kovács. (TABLEAUX)

The Vampire *Diary.* Vampire authors. (CAV)

Expressive Power of Temporal Message Passing. Przemysław Andrzej Wałęga, Michael Rawson. (AAAI)

2024 *Reducibility Constraints in Superposition.* Márton Hajdu, Laura Kovács, Michael Rawson, Andrei Voronkov. (IJCAR)

Rewriting and Inductive Reasoning. Márton Hajdu, Laura Kovács, Michael Rawson. (LPAR)

CryptoVampire: Automated Reasoning for the Complete Symbolic Attacker Cryptographic Model. Simon Jeanteur, Laura Kovács, Matteo Maffei, Michael Rawson. (S&P)

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

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

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

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

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

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

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

Eliminating Models during Model Elimination. Michael Rawson, Giles Reger. (TABLEAUX)

2019 *Old or Heavy? Decaying Gracefully with Age/Weight Shapes.* Michael Rawson, Giles Reger. (CADE)