Michael Rawson

Academic Publications

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Brief

From 2017–20 I followed a doctoral program, adding machine-learned guidance to automatic theorem provers. I am currently a research associate working on parallelism in the Vampire theorem prover. More generally I am interested in formal methods and adapting techniques from other areas in support of these methods.

Education

BA Computer Science, *University of Cambridge*. **2014–2017**

PhD Computer Science, *University of Manchester*. **2017–**

Publications and talks

[1] Michael Rawson, Dominic Mulligan, and Victor Gomes. Verified metatheory and type inference for a name-carrying simply-typed λ-calculus. *Archive of Formal Proofs*, July 2017. `http://isa-afp.org/entries/Name_Carrying_Type_Inference.html`.

[2] Michael Rawson and Giles Reger. Designing a proof calculus for the application of learned search heuristics. In *Proceedings of the 25th Automated Reasoning Workshop*, pages 42–43, 2018.

[3] Michael Rawson and Giles Reger. Dynamic strategy priority: Empower the strong and abandon the weak. In *6th Workshop on Practical Aspects of Automated Reasoning (PAAR)*, pages 58–71, 2018.

[4] Michael Rawson and Giles Reger. Testing ATP folklore: a statistical analysis of Vampire proofs. Vampire Workshop, 2018.

[5] Michael Rawson and Giles Reger. Towards an efficient architecture for intelligent theorem provers. In *Fourth Conference on Artificial Intelligence and Theorem Proving*, pages 59–60, 2019.

[6] Michael Rawson and Giles Reger. Reinforcement-learned input for saturation provers. In *Proceedings of the 26th Automated Reasoning Workshop*, pages 13–14, 2019.

[7] Michael Rawson and Giles Reger. A neurally-guided, parallel theorem prover. In *International Symposium on Frontiers of Combining Systems*, pages 40–56. Springer, 2019.

[8] Michael Rawson and Giles Reger. Old or heavy? Decaying gracefully with age/weight shapes. In *International Conference on Automated Deduction*, pages 462–476. Springer, 2019.

[9] Michael Rawson and Giles Reger. Directed graph networks for logical reasoning. In *7th Workshop on Practical Aspects of Automated Reasoning (PAAR)*, 2020.

[10] Ahmed Bhayat Michael Rawson and Giles Reger. Reinforcement-learned external guidance for theorem provers. 7th Workshop on Practical Aspects of Automated Reasoning (PAAR), 2020.

[11] Michael Rawson and Giles Reger. Autoencoding TPTP. Fifth Conference on Artificial Intelligence and Theorem Proving, 2020.

[12] Michael Rawson and Giles Reger. lazyCoP 0.1. EasyChair Preprint no. 3926, EasyChair, 2020.

[13] Michael Rawson and Giles Reger. Automated theorem proving, fast and slow. EasyChair Preprint no. 4433, EasyChair, 2020.