Andrew Cropper

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Academic employment

• Junior Research Fellow (JRF), Hertford College, University of Oxford	2018 -
• Research Assistant, University of Cambridge	2013

Education

• PhD Computer Science, Imperial College London Supervisor: Professor Stephen Muggleton	2013 - 2017
• MSc Computer Science, University of Oxford	2010 - 2011
• BSc Computer Science, Nottingham Trent University	2005 - 2009

Industrial employment

• Researcher, MFG Labs, Paris, France	2012 - 2013
• Software Engineer, Esendex, Nottingham	2009 - 2010
• Software Engineer, Counter Solutions, Derby	2007 - 2008

Awards

• Best paper	ILP 2019
• Best paper	ILP 2018
• Best student paper	ILP 2014

Fellowships and scholarships

• Hertford College Junior Research Fellowship (JRF) (£120,000)	2018
• JSPS postdoctoral fellowship (*declined in favour of the JRF*)	2018
• Syngenta fellowship (£30,000)	2013
• BBSRC PhD studentship (£100,000)	2013

Grants

• Google Cloud Platform grant ($5,000)	2019
• National Institute of Informatics internship (£3,000)	2014

Supervision

PhD

• Rolf Morel, University of Oxford	2019 -

MSc

• Rolf Morel, University of Oxford (distinction)	2018

BSc

• Andrei Diaconu, University of Oxford (distinction)	2020
• Alastair Flynn, University of Oxford (distinction)	2020

Research internships

- Joar Skalse, University of Oxford — 2018

Teaching

- Introduction to Formal Proof, University of Oxford — 2020
- Computational Logic, Stanford University (Oxford campus) — 2019

Research visits

- Massachusetts Institute of Technology — 2016, 2018, 2019
  Visited Professor Josh Tenenbaum
- KU Leuven — 2019
  Visited Dr Sebastijan Dumančić
- National Institute of Informatics, Tokyo, Japan — 2014, 2015, 2017
  Visited Professor Katsumi Inoue

Publications

Journals

1. **A. Cropper** and S. Tourret. Logical reduction of metarules. *Machine Learning*, 109(7):1323–1369, 2020
2. **A. Cropper**, R. Evans, and M. Law. Inductive general game playing. *Machine Learning*, 109(7):1393–1434, 2020
3. **A. Cropper**, R. Morel, and S. H. Muggleton. Learning higher-order logic programs. *Machine Learning*, 109(7):1289–1322, 2020
4. **A. Cropper** and S. H. Muggleton. Learning efficient logic programs. *Machine Learning*, 108(7):1063–1083, 2019

Conferences

1. **A. Cropper** and S. Dumančić. Learning large logic programs by going beyond entailment. In *Proceedings of the Twenty-Ninth International Joint Conference on Artificial Intelligence, **IJCAI** 2020*, pages 2073–2079. ijcai.org, 2020
2. **A. Cropper**, S. Dumančić, and S. H. Muggleton. Turning 30: New ideas in inductive logic programming. In *Proceedings of the Twenty-Ninth International Joint Conference on Artificial Intelligence, **IJCAI** 2020*, pages 4833–4839. ijcai.org, 2020
3. **A. Cropper**. Forgetting to learn logic programs. In *The Thirty-Fourth **AAAI** Conference on Artificial Intelligence, AAAI 2020, New York, NY, USA, February 7-12, 2020*, pages 3676–3683. AAAI Press, 2020
4. **A. Cropper**, R. Morel, and S. H. Muggleton. Learning higher-order programs through predicate invention. In *The Thirty-Fourth **AAAI** Conference on Artificial Intelligence, AAAI 2020, New York, NY, USA, February 7-12, 2020*, pages 13655–13658. AAAI Press, 2020
5. **A. Cropper**. Playgol: learning programs through play. In *Proceedings of the Twenty-Eighth International Joint Conference on Artificial Intelligence, **IJCAI** 2019, Macao, China, August 10-16, 2019*, pages 6074–6080. ijcai.org, 2019
6. S. Tourret and **A. Cropper**. SLD-resolution reduction of second-order horn fragments. In *Logics in Artificial Intelligence - 16th European Conference, JELIA 2019, Rende, Italy, May 7-11, 2019, Proceedings*, volume 11468 of *Lecture Notes in Computer Science*, pages 259–276. Springer, 2019
7. R. Morel, **A. Cropper**, and C. L. Ong. Typed meta-interpretive learning of logic programs. In *Logics in Artificial Intelligence - 16th European Conference, JELIA 2019, Rende, Italy, May 7-11, 2019, Proceedings*, volume 11468 of *Lecture Notes in Computer Science*, pages 198–213. Springer, 2019
8. **A. Cropper** and S. Tourret. Derivation reduction of metarules in meta-interpretive learning. In *Inductive Logic Programming - 28th International Conference, ILP 2018, Ferrara, Italy, September 2-4, 2018, Proceedings*, volume 11105 of *Lecture Notes in Computer Science*, pages 1–21. Springer, 2018
9. **A. Cropper** and S. H. Muggleton. Learning higher-order logic programs through abstraction and invention. In *Proceedings of the Twenty-Fifth International Joint Conference on Artificial Intelligence, **IJCAI** 2016, New York, NY, USA, 9-15 July 2016*, pages 1418–1424. IJCAI/AAAI Press, 2016

10. **A. Cropper**. Logic-based inductive synthesis of efficient programs. In *Proceedings of the Twenty-Fifth International Joint Conference on Artificial Intelligence, **IJCAI** 2016, New York, NY, USA, 9-15 July 2016*, pages 3980−3981. IJCAI/AAAI Press, 2016

11. **A. Cropper** and S. H. Muggleton. Learning efficient logical robot strategies involving composable objects. In *Proceedings of the Twenty-Fourth International Joint Conference on Artificial Intelligence, **IJCAI** 2015, Buenos Aires, Argentina, July 25-31, 2015*, pages 3423−3429. AAAI Press, 2015

12. **A. Cropper**, A. Tamaddoni-Nezhad, and S. H. Muggleton. Meta-interpretive learning of data transformation programs. In *Inductive Logic Programming - 25th International Conference, ILP 2015, Kyoto, Japan, August 20-22, 2015, Revised Selected Papers*, volume 9575 of *Lecture Notes in Computer Science*, pages 46−59. Springer, 2015

13. C. Farquhar, G. Grov, **A. Cropper**, S. Muggleton, and A. Bundy. Typed meta-interpretive learning for proof strategies. In *Late Breaking Papers of the 25th International Conference on Inductive Logic Programming, Kyoto University, Kyoto, Japan, August 20th to 22nd, 2015.*, volume 1636 of *CEUR Workshop Proceedings*, pages 17−32. CEUR-WS.org, 2015

14. **A. Cropper**. Learning efficient logic programs. In *Proceedings of the Twenty-Fourth International Joint Conference on Artificial Intelligence, **IJCAI** 2015, Buenos Aires, Argentina, July 25-31, 2015*, pages 4359−4360. AAAI Press, 2015

15. **A. Cropper** and S. H. Muggleton. Can predicate invention compensate for incomplete background knowledge? In *Thirteenth Scandinavian Conference on Artificial Intelligence - SCAI 2015, Halmstad, Sweden, November 5-6, 2015*, volume 278 of *Frontiers in Artificial Intelligence and Applications*, pages 27−36. IOS Press, 2015

16. **A. Cropper** and S. H. Muggleton. Logical minimisation of meta-rules within meta-interpretive learning. In *Inductive Logic Programming - 24th International Conference, ILP 2014, Nancy, France, September 14-16, 2014, Revised Selected Papers*, volume 9046 of *Lecture Notes in Computer Science*, pages 62−75. Springer, 2014

Workshops

1. S. Tourret and **A. Cropper**. SLD-resolution reduction of second-order Horn fragments. *Termgraph 2018*.

2. **A. Cropper**. Identifying and inferring objects from textual descriptions of scenes from books. In *2014 Imperial College Computing Student Workshop, ICCSW 2014, September 25-26, 2014, London, United Kingdom*, volume 43 of *OASICS*, pages 19−26. Schloss Dagstuhl - Leibniz-Zentrum fuer Informatik, 2014

Services

Program committee / reviewer

• Machine Learning Journal	2020
• IJCAI	2019, 2020
• AAAI	2020
• ECAI	2020
• POPL	2020
• ILP	2020
• StarAI	2020

Outreach

• TCS Oxford Computing Challenge, Oxford	2019

Selected talks

• Learning programs by learning from failures, MIT	2020
• Inductive general game playing, KU Leuven	2019
• Playgol: learning programs through play, KU Leuven	2019
• Learning higher-order logic programs, KU Leuven	2019