

## Andrew Cropper

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### Academic employment

Junior Research Fellow, Hertford College, University of Oxford	2018 -
Research Assistant, University of Cambridge	2013

### Education

PhD Computer Science, Imperial College London Supervisor: Professor Stephen Muggleton	2017
MSc Computer Science, University of Oxford Supervisor: Dr Brian Harrington	2011
BSc Computer Science, Nottingham Trent University Supervisor: Dr Caroline Langensiepen	2009

### Industry employment

Researcher, MFG Labs, Paris, France	2012 - 2013
Software Engineer, Esendex, Nottingham	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

Junior research fellowship	2018
Syngenta fellowship (£30,000)	2013
Full BBSRC PhD case studentship (£100,173)	2013

### Grants

Google Cloud Platform grant (\$5,000)	2019
National Institute of Informatics internship (¥370,500 ~£2,600)	2014

### Supervision

I am/was the primary supervisor of the following students:

#### PhD theses

Rolf Morel, University of Oxford	2019 -
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## MSc theses

Rolf Morel, University of Oxford 2018

## BSc projects

Andrei Diaconu, University of Oxford 2020

Alastair Flynn, University of Oxford 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

## Publications

### Journals

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

### Conferences

1. **A. Cropper** and S. Dumancic. Learning large logic programs by going beyond entailment. IJCAI 2020
2. **A. Cropper**. Forgetting to learn logic programs. AAAI 2020
3. **A. Cropper**, R. Morel, and S.H. Muggleton. Learning higher-order logic programs through predicate invention. AAAI 2020
4. **A. Cropper**. Playgol: learning programs through play. In S. Kraus, editor, *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
5. S. Tourret and **A. Cropper**. SLD-resolution reduction of second-order horn fragments. In F. Calimeri, N. Leone, and M. Manna, editors, *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
6. R. Morel, **A. Cropper**, and C. L. Ong. Typed meta-interpretive learning of logic programs. In F. Calimeri, N. Leone, and M. Manna, editors, *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
7. **A. Cropper** and S. Tourret. Derivation reduction of metarules in meta-interpretive learning. In F. Riguzzi, E. Bellodi, and R. Zese, editors, *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
8. **A. Cropper** and S. H. Muggleton. Learning higher-order logic programs through abstraction and invention. In S. Kambhampati, editor, *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

9. **A. Cropper**. Logic-based inductive synthesis of efficient programs. In S. Kambhampati, editor, *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
10. **A. Cropper** and S. H. Muggleton. Learning efficient logical robot strategies involving composable objects. In Q. Yang and M. Wooldridge, editors, *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
11. **A. Cropper**, A. Tamaddoni-Nezhad, and S. H. Muggleton. Meta-interpretive learning of data transformation programs. In K. Inoue, H. Ohwada, and A. Yamamoto, editors, *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
12. C. Farquhar, G. Grov, **A. Cropper**, S. Muggleton, and A. Bundy. Typed meta-interpretive learning for proof strategies. In K. Inoue, H. Ohwada, and A. Yamamoto, editors, *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
13. **A. Cropper**. Learning efficient logic programs. In Q. Yang and M. Wooldridge, editors, *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
14. **A. Cropper** and S. Muggleton. Can predicate invention compensate for incomplete background knowledge? In S. Nowaczyk, editor, *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
15. **A. Cropper** and S. H. Muggleton. Logical minimisation of meta-rules within meta-interpretive learning. In J. Davis and J. Ramon, editors, *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. Tournet 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 R. Neykova and N. Ng, editors, *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

IJCAI	2019, 2020
AAAI	2020
ECAI	2020
ILP	2020
StarAI	2020

### Other

IJCAI student volunteer	2015, 2016
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### Outreach

TCS Oxford Computing Challenge, Oxford	2019
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## Talks

Inductive general game playing, KU Leuven	2019
Playgol: learning programs through play, KU Leuven	2019
Learning higher-order logic programs, KU Leuven	2019
Inductive general game playing, MIT	2019
Playgol: learning programs through play, MIT	2019
Playgol: learning programs through play, Machine Intelligence 21	2019
Inductive general game playing, Dagstuhl	2019
Playgol: learning programs through play, Dagstuhl	2019
Learning algorithms using logic, University of Oxford	2019
Learning efficient logic programs, MIT	2018
Learning efficient logic programs, Dagstuhl	2017
Learning higher-order logic programs, Dagstuhl	2017
Learning efficient logic programs, Machine Intelligence 20	2016
Logic-based learning of programs, UC Berkeley	2016
Metagol, Dagstuhl	2015
Predicate invention in meta-interpretive learning, Wakayama University	2014