

## Andrew Cropper

andrew.cropper@cs.ox.ac.uk

### Education

PhD Computer Science, Imperial College London 2017  
Supervisor: Professor Stephen Muggleton  
Thesis: Efficiently learning efficient programs

MSc Computer Science, University of Oxford 2011  
Supervisor: Dr Brian Harrington  
Thesis: Predicting stock volume using Twitter

BSc Computer Science, Nottingham Trent University 2009  
Supervisor: Dr Caroline Langensiepen  
Dissertation: Identifying and inferring objects from natural language

### Academic employment

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

### Industry employment

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

### Research visits

Massachusetts Institute of Technology 2016, 2018, 2019  
Visited Professor Josh Tenenbaum

KU Leuven 2019  
Visited Dr Sebastijan Dumancic

National Institute of Informatics, Tokyo, Japan 2014, 2015, 2017  
Visited Professor Katsumi Inoue

### Awards

*Machine Learning journal* best paper award ILP 2018  
*Machine Learning journal* best student paper award ILP 2014

### Grants and fellowships

Google Cloud Platform grant (\$5000) 2019  
Junior research fellowship, Hertford College, University of Oxford 2018

National Institute of Informatics internship (¥370,500)	2014
Syngenta fellowship (£30,000)	2013
Full BBSRC PhD case studentship (£100,173)	2013

## Supervision

### PhD theses

Rolf Morel, University of Oxford (lead supervisor)	2019 -
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### MSc theses

Rolf Morel, University of Oxford	2018
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### BSc projects

Andrei Diaconu, University of Oxford	2020
Alastair Flynn, University of Oxford	2020

## Teaching

Tutor in Computational Logic, Stanford University	2019
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## Publications

### Journals

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

### Conferences

1. A. Cropper. Forgetting to learn logic programs. AAAI20
2. A. Cropper, R. Morel, and S.H. Muggleton. Learning higher-order logic programs through predicate invention. AAAI20.
3. 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
4. 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
5. 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

6. 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
7. 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
8. 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
9. 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
10. 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
11. 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
12. 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
13. 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
14. 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. 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 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

AAAI

2020

ECAI	2020
StarAI	2020
IJCAI	2019

## **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