Andrew Cropper

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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

Best paper award — ILP 2018

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

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

PhD theses

Rolf Morel, University of Oxford 2019 -

MSc theses

Rolf Morel, University of Oxford 2018

BSc projects

Andrei Diaconu, University of Oxford 2020

Alastair Flynn, University of Oxford 2020

Teaching

Tutor in Computational Logic, Stanford University (Oxford campus) 2019

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. AAAI 2020.
2. A. Cropper, R. Morel, and S.H. Muggleton. Learning higher-order logic programs through predicate invention. AAAI 2020.
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

Other

IJCAI student volunteer	2015, 2016

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