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
JSPS postdoctoral fellowship (declined)	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 -

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

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. 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

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

Other

IJCAI student volunteer	2015, 2016

Outreach

TCS Oxford Computing Challenge, Oxford	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