

## Andrew Cropper

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### Education

PhD Computer Science, Imperial College London Supervisor: Professor Stephen Muggleton Thesis: Efficiently learning efficient programs	2017
MSc Computer Science, University of Oxford Supervisor: Dr Brian Harrington Thesis: Predicting stock volume using Twitter	2011
BSc Computer Science, Nottingham Trent University Graduated with first-class honours Supervisor: Dr Caroline Langensiepen Dissertation: Identifying and inferring objects from natural language	2009

### Employment

Junior Research Fellow, Hertford College, University of Oxford Working on inductive logic programming	2018 -
Research Assistant, University of Cambridge Worked with Dr Eiko Yonkei on distributed graph algorithms	2013
Research Engineer, MFG Labs, Paris, France Designed large-scale distributed machine learning algorithms	2012 - 2013
Software Engineer, Esendex, Nottingham Developed analytical tools to monitor SMS traffic	2010
Software Engineer, Counter Solutions, Derbyshire Developed analytical tools to monitor servers	2007 - 2008

### Research visits

Massachusetts Institute of Technology Worked with Professor Josh Tenenbaum on program induction	2016, 2018
National Institute of Informatics, Tokyo, Japan Worked with Professor Katsumi Inoue on inductive logic programming	2014, 2015, 2017

### Awards

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

## Grants

- Junior research fellowship, Hertford College, University of Oxford 2018
- National Institute of Informatics international internship program 2014
- Syngenta fellowship 2013
- Full BBSRC PhD case studentship 2013

## Teaching

- Tutor in Computational Logic, Stanford University 2019

## Supervision

- Rolf Morel, MSc Computer Science, University of Oxford 2018  
Typed meta-interpretive learning of logic programs

## Publications

### Journals

- Andrew Cropper and Stephen H. Muggleton. Learning efficient logic programs. *Machine Learning*, Apr 2018

### Conferences

- Sophie Touret and Andrew Cropper. Sld-resolution reduction of second-order horn fragments. In *JELIA*, 2019
- Rolf Morel, Andrew Cropper, and Luke Ong. Typed meta-interpretive learning of logic programs. In *JELIA*, 2019
- Andrew Cropper and Sophie Touret. Derivation reduction of metarules in meta-interpretive learning. In Fabrizio Riguzzi, Elena Bellodi, and Riccardo 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
- Andrew Cropper and Stephen H. Muggleton. Learning higher-order logic programs through abstraction and invention. In Subbarao 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
- Andrew Cropper and Stephen H. Muggleton. Learning efficient logical robot strategies involving composable objects. In Qiang Yang and Michael 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
- Andrew Cropper, Alireza Tamaddoni-Nezhad, and Stephen H. Muggleton. Meta-interpretive learning of data transformation programs. In Katsumi Inoue, Hayato Ohwada, and Akihiro 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

- Colin Farquhar, Gudmund Grov, Andrew Cropper, Stephen Muggleton, and Alan Bundy. Typed meta-interpretive learning for proof strategies. In Katsumi Inoue, Hayato Ohwada, and Akihiro 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
- Andrew Cropper and Stephen Muggleton. Can predicate invention compensate for incomplete background knowledge? In Slawomir 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
- Andrew Cropper and Stephen H. Muggleton. Logical minimisation of meta-rules within meta-interpretive learning. In Jesse Davis and Jan 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

- Sophie Touret and Andrew Cropper. SLD-resolution reduction of second-order Horn fragments. *Term-graph 2018*.
- Andrew Cropper. Identifying and inferring objects from textual descriptions of scenes from books. In Rumyana Neykova and Nicholas 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

### Extended abstracts

- Andrew Cropper. Logic-based inductive synthesis of efficient programs. In Subbarao 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
- Andrew Cropper. Learning efficient logic programs. In Qiang Yang and Michael 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

### Talks

- Learning efficient logic programs, MIT, USA, September 2018.
- Learning efficient logic programs, *Workshop on approaches and Applications of inductive programming*, Dagstuhl, Germany, October 2017.
- Learning higher-order logic programs, *Workshop on approaches and Applications of inductive programming*, Dagstuhl, Germany, October 2017.
- Learning efficient logic programs, *Machine Intelligence 20 workshop on human-like computing*, London, UK, October 2016.
- Logic-based learning of programs from input/output examples, UC Berkeley, USA, July 2016.
- Metagol, *Workshop on approaches and Applications of inductive programming*, Dagstuhl, Germany, October 2015.
- Predicate invention in meta-interpretive learning, *Meeting on abductive and inductive reasoning*, Wakayama University, Japan, November 2014.