Andrew Cropper

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Academic employment

Research Fellow, University of Oxford	2021-
Junior Research Fellow, University of Oxford	2018-2021
Research Assistant, University of Cambridge	2013

Education

PhD Computer Science, Imperial College London	2018
MSc Computer Science, University of Oxford	2011
BSc Computer Science, Nottingham Trent University	2009

Awards and honours

AAAI new faculty highlights	AAAI 2023
Best paper	ILP 2019
Best paper	ILP 2018
Best student paper	ILP 2014

Grants and fellowships

2021-2026	EPSRC early career fellowship, *The Automatic Computer Scientist*	£1.4m
2021-2022	EPSRC kick-starter grant, *Explainable drug design*	£81k
2021-2024	Non-stipendiary junior research fellowship, Hertford College, University of Oxford	
2019	Google cloud platform grant	$5k
2018-2021	Junior research fellowship, Hertford College, University of Oxford	£120k
2014	National Institute of Informatics internship	£3k
2013-2017	Syngenta fellowship	£30k
2013-2017	BBSRC PhD studentship	£100k

Supervision

I am/was the primary supervisor of the following students/postdocs except where otherwise stated

Postdoc

Minghao Liu	2023-
Filipe Gouveia	2023-24
Céline Hocquette	2021-

PhD/DPhil

Rolf Morel	2019-2023

MSc

John Wahlig	2021
Brad Hunter	2021
Rolf Morel	2018

BA

Maria-Alexa Tudose (*co-supervisor*)	2023
Victor Vasiesiu	2022
Bogdan Cretu	2022
Cristian Dinu	2021, 2022
Andrei Diaconu	2020
Alastair Flynn	2020

Summer intern

Joar Skalse	2018

External PhD examiner

Lidia Contreras Ochando, Universitat Politècnica de València	2020

Teaching

Introduction to formal proof, University of Oxford	2020
Computational logic, Stanford University (Oxford campus)	2019

Industrial employment

Researcher, MFG Labs, Paris, France	2012-2013
Software Engineer, Esendex, Nottingham	2009-2010
Software Engineer, Counter Solutions, Derby	2007-2008

Research visits

Matti Järvisalo, University of Helsinki	2023, 2024
Josh Tenenbaum, MIT	2016, 2018, 2019
Sebastijan Dumančić, KU Leuven	2019
Katsumi Inoue, National Institute of Informatics, Japan	2014, 2015, 2017

Visitors hosted

Andreas Niskanen, University of Helsinki	2023
Tom Silver, MIT	2023
David Cerna, JKU	2022, 2023
Ute Schmid, Bamberg	2022
Sebastijan Dumančić, TU Delft	2022

Publications
Journals

Symbolic metaprogram search improves learning efficiency and explains rule learning in humans J.S. Rule, S.T. Piantadosi, A. Cropper, K. Ellis, M. Nye, and J.B. Tenenbaum	Nature Comms 2024
Learning programs by explaining failures R. Morel and A. Cropper	MLJ 2023
Learning programs with magic values C. Hocquette and A. Cropper	MLJ 2023

Inductive logic programming at 30: A new introduction A. Cropper and S. Dumancic	JAIR 2022
Inductive logic programming at 30 A. Cropper, S. Dumančić, R. Evans, and S. H. Muggleton	MLJ 2022
Learning programs by learning from failures A. Cropper, and R. Morel	MLJ 2021
Logical reduction of metarules A. Cropper, and S. Tourret	MLJ 2020
Inductive general game playing A. Cropper, R. Evans, and M. Law	MLJ 2020
Learning higher-order logic programs A. Cropper R. Morel, and S. H. Muggleton	MLJ 2020
Learning efficient logic programs A. Cropper and S. H. Muggleton	MLJ 2019

Conferences

Learning logic programs by finding minimal unsatisfiable programs A. Cropper and C. Hocquette	ECAI 2024
Learning big logical rules by joining small rules C. Hocquette, A. Niskanen, M. Jarvisalo, and A. Cropper	IJCAI 2024
Learning logic programs by discovering higher-order abstractions C. Hocquette, S. Dumančić, and A. Cropper	IJCAI 2024
Learning optimal logic programs from noisy data C. Hocquette, A. Niskanen, M. Jarvisalo, and A. Cropper	AAAI 2024
Generalisation through negation and predicate invention D. Cerna and A. Cropper	AAAI 2024
Learning logic programs by combining programs A. Cropper and C. Hocquette	ECAI 2023
Relational program synthesis with numerical reasoning C. Hocquette and A. Cropper	AAAI 2023
Learning logic programs by discovering where not to search A. Cropper and C. Hocquette	AAAI 2023
The automatic computer scientist A. Cropper	AAAI 2023
Learning logic programs though divide, constrain, and conquer A. Cropper	AAAI 2022
Knowledge refactoring for inductive program synthesis S. Dumancic, T. Guns, and A. Cropper	AAAI 2021
Learning large logic programs by going beyond entailment A. Cropper and S. Dumančić	IJCAI 2020

Turning 30: new ideas in inductive logic programming A. Cropper, S. Dumančić, and S. H. Muggleton	IJCAI 2020
Forgetting to learn logic programs A. Cropper	AAAI 2020
Learning higher-order programs through predicate invention A. Cropper, R. Morel, and S. H. Muggleton	AAAI 2020
Playgol: learning programs through play A. Cropper	IJCAI 2019
SLD-resolution reduction of second-order horn fragments S. Tourret and A. Cropper	JELIA 2019
Typed meta-interpretive learning of logic programs R. Morel, A. Cropper, and C. L. Ong	JELIA 2019
Derivation reduction of metarules in meta-interpretive learning A. Cropper and S. Tourret	ILP 2018
Learning higher-order logic programs through abstraction and invention A. Cropper and S. H. Muggleton	IJCAI 2016
Logic-based inductive synthesis of efficient programs A. Cropper	IJCAI 2016
Learning efficient logical robot strategies involving composable objects A. Cropper and S. H. Muggleton	IJCAI 2015
Learning efficient logic programs A. Cropper	IJCAI 2015
Meta-interpretive learning of data transformation programs A. Cropper, A. Tamaddoni-Nezhad, and S. H. Muggleton	ILP 2015
Typed meta-interpretive learning for proof strategies C. Farquhar, G. Grov, A. Cropper, S. Muggleton, and A. Bundy	ILP 2015
Can predicate invention compensate for incomplete background knowledge? A. Cropper and S. H. Muggleton	SCAI 2015
Logical minimisation of meta-rules within meta-interpretive learning A. Cropper and S. H. Muggleton	ILP 2014

Service

Tutorials

Inductive logic programming: an introduction and recent advances	AAAI 2023

Organisation

Co-organiser Dagstuhl seminar *Approaches and Applications of Inductive Programming*	2021, 2023

Senior program committee

IJCAI	2021

Program committee

AAAI	2020-2024
IJCAI	2019-2024
ILP	2020-2022
KR	2021
ECAI	2020

Reviewer

Journal of automated reasoning	2024
Machine learning journal	2020-2023
International journal of approximate reasoning	2023
IJCAI surveys	2021, 2022
POPL	2020
StarAI	2020

Department service

PhD/DPhil admissions	2022, 2023

College service

Undergraduate admissions, Hertford College, University of Oxford	2021, 2022

Invited panellist

AI discussion, Royal United Services Institute (RUSI), Oxford	2023
AI panel, Morgan Stanley Global Investment Seminar, Venice	2023

Outreach

Head, Hand, & Hertford, Hertford College, University of Oxford	2023
UNIQ summer school, University of Oxford	2021
Bebras Computing Challenge, University of Oxford	2019

Selected talks

The automatic computer scientist

– AAAI new faculty highlights	2023
– Forest Agostinelli's group, University of South Carolina	2022

Learning programs by learning from failures

– AAAI journal track	2023
– Josh Tenenbaum's group, MIT	2019

Learning higher-order logic programs

– Seminar on KRR, LMU Munich	2021
– DTAI seminar, KU Leuven	2019
– Dagstuhl seminar on inductive programming	2017

Inductive logic programming