

## Andrew Cropper

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### Academic employment

2025-	Associate Professor	University of Helsinki
2025-	Principal Investigator	ELLIS Institute Finland
2021-25	Research Fellow	University of Oxford
2018-2021	Junior Research Fellow	University of Oxford
2013	Research Assistant	University of Cambridge

### Education

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

### Awards and honours

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

### Major grants and fellowships

2026	ARC foundation donation	
2021	EPSRC early career fellowship	£1.4m
2021	EPSRC kick-starter grant	£81k
2018	Junior Research Fellowship, University of Oxford	

### Other grants and fellowships

2024	Helsinki Institute for Information Technology visitor funding	€5k
2021-2024	Non-stipendiary junior research fellowship, University of Oxford	
2019	Google cloud platform grant	\$5k
2014	National Institute of Informatics internship	£3k
2013	Syngenta fellowship	£30k

### Keynote talks

2025	International joint conference on learning & reasoning (IJCLR)
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### Publications

AAAI 2026	Symmetry breaking for inductive logic programming <u>A. Cropper</u> , D. Cerna, and M. Jarvisalo
AAAI 2026	Efficient rule induction by ignoring pointless rules <u>A. Cropper</u> and D. Cerna
AAAI 2026	Can humans teach machines to code? C. Hocquette, J. Langer, <u>A. Cropper</u> , and U. Schmid
IJCAI 2025	Relational decomposition for program synthesis C. Hocquette and <u>A. Cropper</u>
AAAI 2025	Scalable knowledge refactoring using constrained optimisation M. Liu, F. Gouveia, D. Cerna, and <u>A. Cropper</u>

- Nature Comms 2024 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
- ECAI 2024 Learning logic programs by finding minimal unsatisfiable programs  
[A. Cropper](#) and C. Hocquette
- IJCAI 2024 Learning big logical rules by joining small rules  
C. Hocquette, A. Niskanen, R. Morel, M. Jarvisalo, and [A. Cropper](#)
- IJCAI 2024 Learning logic programs by discovering higher-order abstractions  
C. Hocquette, S. Dumančić, and [A. Cropper](#)
- AAAI 2024 Learning MDL 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 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](#)
- MLJ 2023 Learning programs by explaining failures  
R. Morel and [A. Cropper](#)
- MLJ 2023 Learning programs with magic values  
C. Hocquette and [A. Cropper](#)
- ECAI 2023 Learning logic programs by combining programs  
[A. Cropper](#) and C. Hocquette
- AAAI 2022 Learning logic programs though divide, constrain, and conquer  
[A. Cropper](#)
- JAIR 2022 Inductive logic programming at 30: A new introduction  
[A. Cropper](#) and S. Dumancic
- MLJ 2022 Inductive logic programming at 30  
[A. Cropper](#), S. Dumančić, R. Evans, and S. H. Muggleton
- MLJ 2021 Learning programs by learning from failures  
[A. Cropper](#) and R. Morel
- AAAI 2021 Knowledge refactoring for inductive program synthesis  
S. Dumancic, T. Guns, and [A. Cropper](#)
- IJCAI 2020 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
- AAAI 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

MLJ 2020	Logical reduction of metarules <u>A. Cropper</u> and S. Tourret
MLJ 2020	Inductive general game playing <u>A. Cropper</u> , R. Evans, and M. Law
MLJ 2020	Learning higher-order logic programs <u>A. Cropper</u> , R. Morel, and S. H. Muggleton
IJCAI 2019	Playgol: learning programs through play <u>A. Cropper</u>
MLJ 2019	Learning efficient logic programs <u>A. Cropper</u> and S. H. Muggleton
JELIA 2019	SLD-resolution reduction of second-order horn fragments S. Tourret and <u>A. Cropper</u>
JELIA 2019	Typed meta-interpretive learning of logic programs R. Morel, <u>A. Cropper</u> , and C. L. Ong
ILP 2018	Derivation reduction of metarules in meta-interpretive learning <u>A. Cropper</u> and S. Tourret
IJCAI 2016	Learning higher-order logic programs through abstraction and invention <u>A. Cropper</u> and S. H. Muggleton
IJCAI 2016	Logic-based inductive synthesis of efficient programs <u>A. Cropper</u>
IJCAI 2015	Learning efficient logical robot strategies involving composable objects <u>A. Cropper</u> and S. H. Muggleton
IJCAI 2015	Learning efficient logic programs <u>A. Cropper</u>
ILP 2015	Meta-interpretive learning of data transformation programs <u>A. Cropper</u> , A. Tamaddoni-Nezhad, and S. H. Muggleton
ILP 2015	Typed meta-interpretive learning for proof strategies C. Farquhar, G. Grov, <u>A. Cropper</u> , S. Muggleton, and A. Bundy
SCAI 2015	Can predicate invention compensate for incomplete background knowledge? <u>A. Cropper</u> and S. H. Muggleton
ILP 2014	Logical minimisation of meta-rules within meta-interpretive learning <u>A. Cropper</u> and S. H. Muggleton

## Supervision

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

### Postdoc

2025	Mingyue Liu	University of Oxford (→ Postdoc @ Oxford)
2023–2024	Minghao Liu	University of Oxford (→ Postdoc @ Oxford)
2023–2024	Filipe Gouveia	University of Oxford (→ Assistant Professor @ University of Lisbon)
2021–2024	Céline Hocquette	University of Oxford (→ Lecturer @ Southampton → Researcher @ Ndea)

### PhD

2026–	Lucas Carr	University of Helsinki
2019–2023	Rolf Morel	University of Oxford (→ Researcher @ Intel)

## MSc

2026	Vishwa Gullapalli	University of Helsinki
2022	Cristian Dinu	University of Oxford
2022	Bogdan Cretu	University of Oxford
2021	John Wahlig	University of Oxford
2021	Brad Hunter	University of Oxford
2018	Rolf Morel	University of Oxford

## BSc

2022	Victor Vasiesiu	University of Oxford
2021	Cristian Dinu	University of Oxford
2020	Alastair Flynn	University of Oxford

## Summer intern

2024	Mingyue Liu	University of Oxford
2018	Joar Skalse	University of Oxford

## Research visits

2023, 2024, 2025	Matti Järvisalo	University of Helsinki
2016, 2018, 2019	Josh Tenenbaum	MIT
2019	Sebastijan Dumančić	KU Leuven
2014, 2015, 2017	Katsumi Inoue	National Institute of Informatics, Japan

## Visitors hosted

2023	Andreas Niskanen	University of Helsinki
2023	Tom Silver	MIT
2022, 2023	David Cerna	Czech Academy of Sciences Institute of Computer Science
2022	Ute Schmid	University of Bamberg
2022	Sebastijan Dumančić	TU Delft

## Teaching

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

## Tutorials

2023	AAAI	Inductive logic programming: an introduction and recent advances
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## Industrial employment

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

## Consultancy

2023	Kantar, London
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## Organisation

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

## **Program committee**

2020–2026 AAI  
2019–2025 IJCAI  
2020, 2025 ECAI  
2025 JCLR  
2021 KR  
2020–2022 ILP  
2020 StarAI

## **Reviewer**

2025 Theory and practice of logic programming  
2024 Journal of automated reasoning  
2020–2023 Machine learning journal  
2023 International journal of approximate reasoning  
2021, 2022 IJCAI surveys  
2020 POPL

## **Other service**

2021–2025 EPSRC peer review college  
2015, 2016 IJCAI student volunteer

## **University service**

2022, 2023 PhD admissions University of Oxford  
2021, 2022 Undergraduate admissions University of Oxford

## **Outreach**

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

## **Media**

2026 Podcast guest Ndea abstract synthesis podcast

## **Invited panellist**

2023 AI discussion Royal United Services Institute, Oxford  
2023 AI panel Morgan Stanley global investment seminar, Venice

## Selected talks

2025	Learning rules that obey your rules	Arctic AI day
2025	Automating Karl Popper's logic of scientific discovery	Aachen symposium on learning to act and plan
2024	The automatic computer scientist	Finnish centre for artificial intelligence
2023	The automatic computer scientist	AAAI new faculty highlights
2023	Learning programs by learning from failures	AAAI journal track
2022	The automatic computer scientist	Forest Agostinelli's group, University of South Carolina
2021	Learning programs by learning from failures	University of Potsdam
2021	Learning higher-order logic programs	Seminar on KRR, LMU Munich
2021	Inductive logic programming	Judy Fan's group, UC San Diego
2019	Learning programs by learning from failures	Josh Tenenbaum's group, MIT
2019	Learning higher-order logic programs	DTAI seminar, KU Leuven
2019	Learning programs through play	DTAI seminar, KU Leuven
2019	Learning programs through play	Dagstuhl seminar on inductive programming
2019	Learning programs through play	Machine Intelligence 21
2017	Learning higher-order logic programs	Dagstuhl seminar on inductive programming
2017	Learning efficient logic programs	Josh Tenenbaum's group, MIT
2017	Learning efficient logic programs	Dagstuhl seminar on inductive programming
2016	Inductive logic programming	Stuart Russell's group, UC Berkeley
2016	Learning efficient logic programs	Machine Intelligence 20