Matthew T. Jackson

matthewtjackson.com
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Education

University of Oxford — DPhil in Engineering Science — *2021-Sept 2025*

Member of the AIMS CDT.
Supervised by Jakob Foerster and Shimon Whiteson.

University College London — MSc in Machine Learning — *2020-2021*

"Model-Based Task Inference for Meta-Reinforcement Learning"
Distinction, 87% — Dean's List.
Supervised by Tim Rocktäschel and Edward Grefenstette.

University of Cambridge — BA in Computer Science — *2017-2020*

"Real-Time Video Super-Resolution"
First-Class Honors, 86% — Senior Scholar, ranked 2/99 in cohort.
Highly Commended (top 5) Dissertation — supervised by Pietro Liò.

Selected Publications

Policy-Guided Diffusion
Matthew T. Jackson, Michael T. Matthews, Cong Lu, Benjamin Ellis, Shimon Whiteson, Jakob N. Foerster
RLC 2024 — NeurIPS 2023 Workshop on Robot Learning   [*link*]

Discovering Temporally-Aware Reinforcement Learning Algorithms
Matthew T. Jackson*, Chris Lu*, Louis Kirsch, Robert T. Lange, Shimon Whiteson, Jakob N. Foerster
ICLR 2024   [*link*]

Discovering General Reinforcement Learning Algorithms with Adversarial Environment Design
Matthew T. Jackson, Minqi Jiang, Jack Parker-Holder, Risto Vuorio, Chris Lu, Gregory Farquhar, Shimon Whiteson, Jakob N. Foerster
NeurIPS 2023   [*link*]

Experience

Wayve — Research Scientist Intern — *May-Oct 2024*

Working in the World Models Team on GAIA, Wayve's generative vision-language-action (VLA) model for self-driving.

Amazon — Software Engineering Intern — *2020*

Worked in the Alexa Knowledge Group, developing Java software to rank natural language answers to user questions. Implemented features running on all Alexa Q&A queries.

Arm — Software Engineering Intern — *2019*

Worked in the Machine Learning Software Group, developing Arm's neural network inference engines in C++. Reviewed deep learning research and added support for new architectures. A selection of contributions may be found on the *ArmNN GitHub*.

Cubica Technology (acquired) — Software Engineering Intern — *2018*

Developed a Python script to identify and label reoccurring identities across large-scale video databases. Implemented and trained random forest models for head pose estimation, in addition to a tracking algorithm for video summarization.

Academia

Tutor

Reinforcement Learning (PhD course), Machine Learning (Master's course)

Reviewer

ICLR, ICML (AutoRL), NeurIPS (DeepRL, ALOE, Diffusion Models), DMLR, ACML, Frontiers

Software

Languages   Frameworks

Python, C++, Java, OCaml, HTML/CSS, Bash   JAX, PyTorch, Hugo

Further Publications

Jafar: An Open-Source Genie Reimplementation in Jax
Timon Willi*, **Matthew T. Jackson***, Jakob N. Foerster
ICML 2024 Workshop on Controllable Video Generation   [*link*]

Near to Mid-term Risks and Opportunities of Open Source Generative AI
Francisco Eiras, Aleksandar Petrov, Bertie Vidgen, Christian Schroeder de Witt, Fabio Pizzati,
Katherine Elkins, Supratik Mukhopadhyay, Adel Bibi, Botos Csaba, Fabro Steibel, Fazl Barez,
Genevieve Smith, Gianluca Guadagni, Jon Chun, Jordi Cabot, Joseph Marvin Imperial, Juan A.
Nolazco-Flores, Lori Landay, **Matthew T. Jackson**, Paul Rottger, Philip Torr, Trevor Darrell, Yong
Suk Lee, Jakob N. Foerster
ICML 2024 (Oral)   [*link*]

Craftax: A Lightning-Fast Benchmark for Open-Ended Reinforcement Learning
Michael T. Matthews, Michael Beukman, Benjamin Ellis, Mikayel Samvelyan, **Matthew T. Jackson**, Samuel Coward, Jakob N. Foerster
ICML 2024 (Spotlight)   [*link*]

Towards Addressing Non-stationarity, Plasticity Loss, and Exploration via Learned Optimizers for RL
Alexander D. Goldie, Chris Lu, **Matthew T. Jackson**, Shimon Whiteson, Jakob N. Foerster
ICML 2024 Workshop on Automated Reinforcement Learning (Spotlight)   [*link*]

SplAgger: Split Aggregation for In-Context Reinforcement Learning
Jake Beck, **Matthew T. Jackson**, Risto Vuorio, Zheng Xiong, Shimon Whiteson
RLC 2024   [*link*]

Retrieve What You Need: A Mutual Learning Framework for Open-domain Question Answering
Dingmin Wang, Qiuyuan Huang, **Matthew T. Jackson**, Jianfeng Gao
TACL 2024   [*link*]

Reinforcement Learning Controllers for Soft Robots Using Learned Environments
Uljad Berdica, **Matthew T. Jackson**, Niccolò E. Veronese, Jakob Foerster, Perla Maiolino
RoboSoft 2024   [*link*]

Hypernetworks for Meta-Reinforcement Learning
Jake Beck, **Matthew T. Jackson**, Risto Vuorio, Shimon Whiteson
CoRL 2022   [*link*]

Multi-Modal Fusion by Meta-Initialization
Matthew T. Jackson*, Shreshth Malik*, Michael T. Matthews, Yousuf Mohamed-Ahmed
FARSCOPE Robotics Workshop 2022 (Best Poster Award)   [*link*]

Adam on Local Time: Addressing Non-Stationarity in RL with Relative Adam Timesteps
Benjamin Ellis*, **Matthew T. Jackson***, Andrei Lupu, Alexander D. Goldie, Mattie Fellows, Shimon
Whiteson, Jakob N. Foerster
Under Review