MATTHEW ASHMAN

mca39@cam.ac.uk ◇ https://mattashman.github.io

EDUCATION

Machine Learning Group, University of Cambridge *Oct 2020 - Present*
Ph.D. in Engineering
Supervisor: Dr Adrian Weller
Advisor: Professor Richard E. Turner

Machine Learning and Machine Intelligence, University of Cambridge *Oct 2019 - Sep 2020*
Master of Philosophy, M.Phil.
Research Project: Spatio-Temporal Variational Autoencoders
Supervisor: Professor Richard E. Turner
Grade: Distinction 80.03%

Information and Computer Engineering, University of Cambridge *Oct 2015 - Jun 2019*
Master of Engineering, M.Eng.
Research Project: Predicting the Risk of Atrial Fibrillation during EP studies
Supervisor: Dr Elena Punskaya
Grade: Honours with Distinction 82.3%

PUBLICATIONS AND SELECT PREPRINTS

Causal Reasoning in the Presence of Latent Confounders via Neural ADMG Learning
International Conference on Learning Representations (ICLR) 2023
Matthew Ashman, Chao Ma, Agrin Hilmkil, Joel Jennings, Cheng Zhang
https://arxiv.org/abs/2303.12703

Differentially Private Partitioned Variational Inference
Transactions on Machine Learning Research (TMLR) 2023
Mikko A. Heikkilä, **Matthew Ashman**, Siddharth Swaroop, Richard E. Turner, Antti Honkela
https://arxiv.org/abs/2209.11595

Partitioned Variational Inference: A Framework for Probabilistic Federated Learning
Submitted to JMLR
Matthew Ashman, Thang D. Bui, Cuong V. Nguyen, Efstratios Markou, Adrian Weller, Siddharth Swaroop, Richard E. Turner
https://arxiv.org/abs/2202.12275

Scalable Gaussian Process Variational Autoencoders
International Conference on Artificial Intelligence and Statistics (AISTATS) 2021
Metod Jazbec, **Matthew Ashman**, Vincent Fortuin, Michael Pearce, Stepehn Mandt, Gunnar Rätsch
https://arxiv.org/abs/2010.13472

Sparse Gaussian Process Variational Autoencoders
arXiv preprint arXiv:2010.10177
Matthew Ashman, Jonathan So, Will Tebbutt, Vincent Fortuin, Michael Pearce, Richard E Turner
https://arxiv.org/abs/2010.10177

WORKSHOP PUBLICATIONS

Amortised Inference in Neural Networks for Small-Scale Probabilistic Meta-Learning
5th Symposium on Advances in Approximate Bayesian Inference, 2023
Matthew Ashman*, Tommy Rochussen*, Adrian Weller
https://arxiv.org/abs/2310.15786

GeValDi: Generative Validation of Discriminative Models
ICLR 2023 Workshop on Pitfalls of limited data and computation for Trustworthy ML
ICLR 2023 TinyPapers
Vivek Palaniappan, **Matthew Ashman**, Katherine M. Collins, Juyeon Heo, Adrian Weller, Umang Bhatt
https://openreview.net/pdf?id=2BZDR5JMMS_

Do Concept Bottleneck Models Learn as Intended?
ICLR 2023 Workshop on Responsible AI
Andrei Margeloiu, **Matthew Ashman**, Umang Bhatt, Yanzhi Chen, Mateja Jamnik, Adrian Weller
https://arxiv.org/abs/2105.04289

PROFESSIONAL EXPERIENCE

Citadel Securities *July 2023 - Sep 2023*
Quantitative research

Microsoft Research *June - Sep 2022*
Causal machine learning research with Cheng Zhang and Chao Ma

Prism Training and Consultancy *May 2020 - Nov 2023*
Statistical consultancy

TTP Cambridge *Jun - Jul 2018*
Engineering intern

Prism Training and Consultancy *Jun - Aug 2017*
Software engineer

The University of Sheffield *Jul - Sep 2016*
Electrical engineering research assistant

TEACHING EXPERIENCE

Supervisor, University of Cambridge *Oct 2019 - Present*

- Inference (3F8) for Richard E. Turner.
- Statistical Signal Processing (3F3) for Simon Godsill and Sumeetpal Singh.
- Structures (2P2) for Keith Seffen.

Private Tutor *May 2017 - Present*

- STEM subjects for pupils studying for GCSE, A-Levels and University level examinations.

SCHOLARSHIPS AND AWARDS

George and Lilian Schiff Foundation Studentship *2020 - 2024*
Awarded a full scholarship for a Ph.D. in Machine Learning

Nower Scholarship *2019 - 2020*
Awarded a full scholarship for an M.Phil. in Machine Learning and Machine Intelligence

United Steel Companies Scholarship *2016 - 2019*
For performance in Engineering Tripos

Wright Prize *2016 - 2019*
For performance in Engineering Tripos

Year Prize *2017 - 2019*
For best Engineering student

Winifred Georgina Holgate Pollard Memorial Prize *2017*
For performance in Engineering Tripos

Departmental Prize *2018*
For excellence in Information and Computer Engineering

TALKS

Inference in Stochastic Processes
Machine Learning Group, University of Cambridge
Abstract Slides Video
Variational Bayes as Surrogate Regression
Machine Learning Group, University of Cambridge
Abstract Slides

TECHNICAL STRENGTHS

Machine Learning Frameworks	PyTorch, TensorFlow, GPyTorch, GPflow
Programming Languages	Python, Matlab, Julia, C++