MATTHEW ASHMAN

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

RESEARCH INTERESTS

I am interested in Bayesian machine learning and addressing the challenges of performing computationally efficient, yet effective, approximate inference.

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

Partitioned Variational Inference: A Framework for Probabilistic Federated Learning
arXiv preprint arXiv:2202.12275
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

PROFESSIONAL EXPERIENCE

Microsoft Research *Incoming*
Research Intern with Cheng Zhang

Prism Training and Consultancy *May 2020 -*
Statistical Consultant

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++