James Thornton

Education

2019 - 2023

DPhil/ PhD Researcher
Computational Statistics and Machine Learning
University of Oxford
Sampling Methods • Optimal Transport • Time-Series • Generative Modeling
Supervisors: George Deligiannidis and Arnaud Doucet

2018 - 2019

Probationary Researcher
Statistical Science
University of Oxford
Centre for Doctoral Training

2015 - 2016

Master's in Statistics with Mathematics
University of Warwick
Distinction
Markov Chain Monte Carlo for Bayesian Non-Parametric Mixture Models (89%)
Applications in topic modelling of Twitter data
Supervised by Anthony Lee

2012 - 2015

BSc Mathematics, Operational Research, Statistics and Economics
University of Warwick
First Class Honors (Rank 1-3 each year)

2010 - 2012

A-Levels
5 A*: Mathematics (2 years early), Further Mathematics, Physics, Chemistry, Economics

Technical Skills

▸ Python, R, C++ (order of proficiency)

▸ SQL, Unix, git, Slurm, AWS, GCP

▸ PyTorch, PyTorch-Lightning, Hydra, TensorFlow, MLFlow, HuggingFace Accelerate

including Open Source contributions

Contact

▢ +44 7474 312 459

✉ james.thornton@stats.ox.ac.uk

⌂ www.stats.ox.ac.uk/~thornton

◯ www.github.com/JTT94

Experience

Machine Learning Researcher   **01/2019 - 09/2019**
Rhodes AI Lab (RAIL)
Part time. Developed NLP models for online abuse, with Google Jigsaw.

Analyst | Markets and Analytics Group   **07/2016 - 07/2018**
BlackRock

- Quantitative and technical role including communicating methodology to C-suite clients, equivalent to *strat* or data scientist
- Built out frameworks for time-series analysis, hedging and portfolio optimization for portfolios €4-300bn notional
- Implemented scalable data-analysis pipelines
- Developed and deployed software, sold for ∼€1mil

Scholarship Intern   **2012 - 2014**
EY
Scholarship award including consulting work during studies

Teaching and Reviewing

Reviewer   **2020**
NeurIPS 2020 : Pre-registration in ML

Class Tutor   **2019 - 2020**
Department of Statistics, University of Oxford
Masters/ 4th year undergraduate Advanced Simulation Methods

Teaching Assistant   **2019 - 2020**
Balliol College, University of Oxford
Calculus, Probability, Statistics and Data Analysis

Awards and Scholarships

- Tukey Award for highest scoring Statistics Master's dissertation 2016
- Statistics Senior Scholarship 2015 – 2016
- Goldman Sachs Student Challenge Category Winner 2013-2014
- Karl Pearson Award for Top Exam Performance (91%) 2014
- EY Scholarship 2012-2014

Research and Publications

- Differentiable Particle Filtering via Entropy-Regularized Optimal Transport. *ICML 2021: Long talk (Top 3% submission).* Link
- Diffusion Schrodinger Bridge with Applications to Score-Based Generative Modeling. *Under review.* Link
- The Masked Bouncy Particle Sampler: Parallelized, Piecewise-Deterministic MCMC. *Under review.* Link

Talks and Workshops

- End-to-End Learning via Differentiable Particle Filtering. *CIRM Workshop 2021 (upcoming): End-to-end Bayesian Learning Methods: Contributed talk.*
- Diffusion Generative Modeling and the Schrodinger Bridge *Aalto, Advances in Probabilistic Machine Learning 2021 (upcoming)*
- Differentiable Particle Filtering with Optimal Transport. *Warwick, Algorithms and Computer Intensive Inference 2020*