Alex Bird

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CURRENT

The Alan Turing Institute, London, UK   Oct 2016 – present

- PhD in Informatics (supervisor: Chris Williams)
  - Subject: Time Series and Applications in Healthcare.
  - Focus: Probabilistic Models, Variational Inference, Neural Networks.
  - Affiliated with Edinburgh University.

Interests

My interests lie in building intelligent systems for better decision making – at present in healthcare – with agnostic and varied interests across machine learning and statistics. My primary research interests are in deterministic approximations: mean-field and automatic VI, and EP (and to a lesser extent SMC and MCMC). My belief is that some of the most important applications of machine learning will be possible through the combination of neural networks and Bayesian models (e.g. Johnson et al. 2016).

ACADEMIC PROJECTS

Miscellaneous Projects (see hyperlinks)

- Topics relating to modelling healthcare data   Dec 2016 – Jan 2017
  - Survey of existing work.
  - Nonlinear optimisation (quasi-Newton).
  - Ethical considerations

- Distributed optimisation of Kernel SVM using Linear Programming.   Jun 2015 – Sep 2015
  - Masters project (UCL) with John Shawe-Taylor.
  - Sparse path to support vector solution using LPBoost scheme.
  - Optimise using only current support vectors and violations. Effective for well separated decision boundaries - further potential if distributed LP solvers improve.

- Packages for MATLAB, R
  - (R) nectr: nonparametric clustering and visualisation for analysts.
  - (MATLAB) dynamicalSystems: linear, nonlinear, control, inference, learning, constraints, missing

INDUSTRY

Tesco Retail Supply Chain   Sep 2015 – Sep 2016

Extended and Multiscale Bayesian Matrix Factorisation (VB) incorporating flexible expert knowledge and hierarchical decomposition. The requirement was a sales based time series decomposition at (day, store, product) level into component drivers: promotions, events, season, weather, …
- Derived and built prototype algorithms.
- Designed system backend with developers.
- Additional work on event shape forecasting.

Walgreens Boots Alliance Customer Analytics   Feb 2012 – Aug 2014

Innovated and automated tools to prototype analytics as a service (AaaS) for retail buyers.
- Abstracted and automated most standard data queries.
- Built customer clustering algorithms and associated visualisations.
- Developed models for cross-shop opportunities based on network analytics.

EDUCATION

University College London (UCL), UK

- MSc Computational Statistics and Machine Learning   Sep 2014 – Sep 2015
  - Project supervisor: Prof. John Shawe-Taylor (see projects).
  - Focus: Bayesian Modelling (Gatsby Computational Neuroscience Unit) and Kernels.

University of Nottingham, UK

- BSc Mathematics   Sep 2004 – Jun 2007
  - Focus: Pure mathematics, also linear algebra, probability, combinatorics.

[CV compiled for academia on 2017-03-17]