Pete Bunch

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EMPLOYMENT

Senior Modeling Scientist 2015 — present
Quantcast, Brand Advertising

- Masterminded the design and implementation of a new framework to target and trade off between multiple customer performance goals, including derivation of optimal pricing equations, development of a new control system, and planning and coordination of software changes across the bidding stack, resulting in reliable and consistent performance and fewer unhappy customers.
- Wrote new libraries for real-time model scoring, vastly reducing code complexity and adding a new layer of abstraction, facilitating faster product development, cleaner code deployment, and reducing both computational load and developer pain.
- Upgraded the statistical methodology underlying the A/B test framework, introducing Bayesian inference and hypothesis testing, and providing a rigorous foundation for assessing hundreds of modeling experiments.
- Improved log parsing algorithms to extract double the volume of label data for the flagship search-based brand product.
- Investigated numerous improvements to demographic modeling, including alternative multi-class classification models, methods for model calibration, and unsupervised approaches to discovering hidden classes.
- Won a company-wide hackathon for innovations in bid pricing strategies, and granted three trade secret awards.
- Mentored two summer interns and a winning intern hackathon team.

Data Scientist and Modeling Consultant 2014 — 2015
Tesco, Supply Chain Development

- Developed custom statistical models and learning algorithms for probabilistic forecasting, and implemented them with MATLAB and SQL to run at scale on a Teradata data warehouse. Reduce annual waste bill by £12M.

Postdoctoral Research Associate 2014 — 2015
Cambridge University Engineering Department

- Devised a number of new Markov chain Monte algorithms for machine learning with dynamical system.
- Taught undergraduate engineers in MATLAB, signal processing, and mathematics.
(Modules included linear algebra, probability, vector calculus, differential equations, and filter design.)

SKILLS AND EXPERIENCE

- Proficient with Java, Python (including numpy, scipy and pandas), MATLAB and various SQL flavours. Some familiarity with C, C++, and Scala.
- Experienced with distributed systems and map-reduce processing, primarily with Quantcast's proprietary hadoop-like stack.
- Broad knowledge of modern statistical modeling and machine learning.

EDUCATION

University of Cambridge, Cambridge, UK
PhD in Statistical Modeling and Algorithm Design 2010 — 2014

- Thesis: *"Particle filtering and smoothing algorithms for challenging time series models."*
- Formulated and applied statistical models and Bayesian algorithms for inference and learning.
- Published seven journal papers and presented at four international conferences.

- Worked on theoretical and applied projects, including development of new sequential Monte Carlo methods, and algorithm design for detection of heartbeats in cardiography data.

BA & MEng in Information Engineering (1st with Distinction) 2006 — 2010

- Highest mark in the class in 2008 and 2010; second highest in 2009. Equivalent of 4.0 GPA every year.
- Modules in signal processing, communications, control, hardware and software architecture, and electronics.

ACTIVITIES

- Avid beach runner, wannabe cyclist, pianist and pine cone photographer
- Men's Captain, Cambridge '99s Rowing Club. Raced at Henley Royal Regatta. 2013 – 2014
- Captain, Cambridge University Sailing Team. Semi-finals of University Nationals. 2007 – 2008