Dr Michael A. Dewar

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I build products based on algorithms, powered by data. I work with advanced techniques from data science in order to build next generation products in novel domains. As an innovation focused leader, I rely on a clear vision of the future to generate alignment in my expert teams and stakeholders. I build trust through clear communication, transparent process, and a focus on impact.

For a full portfolio, please see mikedewar.github.io.

Education

The University of Sheffield, UK: PhD Thesis: '**A Framework for Modelling Dynamic Spatiotemporal Systems**'. Awarded June 2007.

The University of Sheffield, UK: **1st Class MEng** in Control Systems Engineering. Awarded August 2002.

Employment

January 2018 onwards: **Mastercard, Cyber & Intelligence**, Vice President of Data Science.
- Led a cross functional team of data scientists, developers, and devops engineers, growing from 5 members to 35 at its peak.
- Promoted a cloud-native, prototype driven approach to design and development, tightly integrating data science and software engineering into product focused teams.
- Engaged in both strategy focused work and community outreach around API orchestration, Privacy Enhancing Technology, and AI.
- Designed synergy products as part of Mastercard's inorganic growth activities.
- New technologies: Homomorphic Encryption, Federated Machine Learning.

May 2016 to January 2018: **Vocalink**, Director of Data Science.
- Led a Data Science and Analytics team, focusing primarily on business intelligence and economic crime products.
- Introduced the Data Science discipline to Vocalink, and lobbied for the modernisation of the technology stack and engineering process.
- Managed the team through the acquisition of Vocalink by Mastercard.
- New technologies: Kafka, Teradata, `xgboost`.

January 2014 to March 2016: **New York Times R&D**, Data Scientist.
- Provided Data Science capability to the R&D Lab as one of five creative technologists.
- Explored the impact of AI and Data Science on the future of the New York Times.
- High client engagement, leading tours through the lab for many different kinds of stakeholders and visitors to the New York Times to discuss the future of news.
- New technologies: Kubernetes, GCP, `word2vec`, `openCV`, ELK.

May 2011 to December 2013: **bitly Inc.**, Senior Data Scientist.
- Used bit.ly data to explore new product opportunities.
- Demonstrated the early "data science hypothesis" that data collected as a by-product could be highly valuable both internally and externally.
- New technologies: Docker, Golang, Python, Javascript, Redis, AWS, `d3.js`, `sckit-learn`, `pandas`, `git`.

January 2010 to April 2011: **Columbia University**, Postdoctoral Researcher, Department of Applied Physics and Applied Mathematics.

July 2008 to December 2009: **University of Edinburgh**, Postdoctoral Researcher, Adaptive and Neural Computation,

School of Informatics.

May 2007 to June 2008: **University of Sheffield**, Postdoctoral Researcher, Department of Automatic Control & Systems Engineering and the Department of Computer Science.

Selected Projects - Mastercard

Consumer Fraud Risk Financial Crime Solutions, **Mastercard** - provides a pre-payment API to detect scams on bank to bank payments. My team and I developed, built, deployed and operated the application layer of this service. It is used by major UK banks, with TSB estimating the service will save the UK economy £100MM per year.
- Consumer Anti-Fraud Solution of the Year - Payments Awards 2023.
- Best Security or Anti-Fraud Development - The Card and Payments Awards 2024.

Trace Financial Crime Financial Crime Solutions, **Mastercard** - detects money laundering over instant payments networks. This service is used by the 13 largest banks in the UK, covering well over 90% of the UK faster payments participants. My team and I executed the technical design, build, deployment, and subsequent operation of this service.
- Rising Star Award - Deloitte Market Gravity Awards 2018.

Corporate Fraud Insights Vocalink Analytics, **Mastercard** - detects fraud in the Bacs payment network in the UK. Working with RBS, this service prevented over £7MM of losses to RBS's customers in less than two years. My team and I built the behavioural modelling, scoring mechanism and application layer to deliver this service.
- Banking Security Innovation of the Year - Retail Banker International Awards 2018.
- Analytics Project of the Year - National Technology Awards 2018.
- Best Security or Anti-Fraud Development - The UK Card & Payments Award 2019.

Selected Projects - New York Times

streamtools R&D, **New York Times**. A graphical toolkit for working with live streams of data.

editor R&D, **New York Times**. A prototype text editor that uses a recurrent neural network and word level embeddings to perform semi-automated tagging of sub-sentence blocks of text.

lazarus R&D, **New York Times**. An application of machine vision techniques to associate a photo from the physical archive with its digital counterpart in the NYT's digital archive.

Community Engagement

AI Public Private Forum 2020-2021. I attended the AI Public Private Forum, run by the Financial Conduct Authority and the Bank of England.

NYT R&D Data Meeting 2013-2016. I ran a weekly, internal cross-departmental meeting at the NYT designed to explore the use of data, in all its forms, inside the NYT.

Data Gotham 2012-2013. I was a co-organizer of Data Gotham - a two day event celebrating Data Science in New York City.

Recorded Talks:
- **Streamtools** 2015. A talk I gave at code Neuro, about streamtools.
- **The Data Perspective** 2015. A talk I gave at the NYC R Conference, about values.
- **Seeing From Above** 2013. A talk I gave in Malmo, Sweden, about data science.

Author of **Getting Started with D3**, Dewar M.A., O'Reilly, 2012.

Full list of academic publications available at mikedewar.github.io.