

# Dr Matt McDonnell

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## Profile

An experimental physicist applying a mathematics-based T-shaped profile to full stack data scientist challenges. Builds solutions ranging from actionable insights to production systems and user applications. Achieves strategic business objectives through innovative analytical problem solving and advanced technical skills in software development and mathematical modelling. Works collaboratively with stakeholders in model development and integration into production systems. Practiced in data science, machine learning, and technical computing.

## Employment History

### Senior Data Scientist (Jagex Ltd, October 2022 - August 2025)

Development of models for Massively Multiplayer Online Role Playing Games to support business decisions and operations across multiple aspects of the games.

Increased understanding of long-term game health through models of in-game economy and player behaviour. Developed NLP and LLM-based models for process automation to improve player support. Improved operational efficiency by development of models for churn, RoAS, and LTV prediction.

### Senior Research Engineer (Uvue Ltd - Fetch.ai and Mettalex, June 2019 - July 2022)

Research and development of DeFi and other fintech applications.

From June 2020 as Mettalex CTO responsible for the full technology stack of Mettalex decentralized commodity exchange and Engineering Manager of a team of 5+ remote developers and designers. Led the financial engineering and economic analysis to design the system and produce the Mettalex Litepaper. Technical lead for development of prototype system in early stages of the project. Demonstrated product to external stakeholders including index providers and commodity traders.

### Development Specialist (HSBC, February 2019 - June 2019)

Global Risk Analytics group. Development of frameworks for modelling Wholesale Credit Risk.

### Data Scientist (Metail Ltd, November 2015 - February 2019)

Development of data products and business intelligence based on virtual fitting room technology.

Supported product adoption by quantifying the impact of Metail technology on business customer commercial and engagement KPIs using experimental design and causal inference techniques. Expanded the Metail product offering by developing machine learning algorithms for user segmentation, conversion prediction, body measurement inference, outfit recommendation, and other applications.

### Quantitative Analyst (Fidelity International, July 2014 - June 2015)

Development of volatility controlled multi-asset products within the Fidelity Solutions group.

### Senior Quantitative Developer (Fidelity International, September 2011 - July 2014)

Development of analysis and simulation tools for equities investment covering a number of business areas. Promoted to Senior Quantitative Developer in July 2013.

### **Technical Consultant (MathWorks, July 2007 - August 2011)**

Consulting Services group. Developed software in MATLAB and provided coaching and integration advice to help customers maximize the value of their investment in MathWorks tools.

### **Research Fellow (Griffith University, September 2006 - April 2007)**

Hydrogen Cooling group. Research into methods of cooling novel atomic species using ultrafast lasers.

### **Postdoctoral Research Assistant (University of Oxford, July 2003 - August 2006)**

Ion Trap Quantum Information Processor group. Research combining theoretical modelling, development of numerical simulations of the system, and experimental work.

Achieved two first-author papers published in Physical Review Letters and contributed to a number of other peer-reviewed papers.

### **Research Engineer (University of Western Australia, January 1999 - July 1999)**

Special Research Centre for Advanced Mineral and Material Processing.

## **Education**

### **DPhil in Physics (University of Oxford, October 1999 - June 2003)**

Thesis: [Two-Photon Readout Methods for an Ion Trap Quantum Information Processor](#)

### **BSc (hons) Chemical Physics (1st) / BE (hons) Materials (1st) (University of Western Australia, February 1993 - November 1998)**

Prizes:

- 1996: Faculty of Science Medal for best Honours Science Student
- 1996: J.A. Wood Memorial Prize for best Honours Student in the Faculties of Science, Engineering, Medicine, Agriculture, and Dentistry
- 1999: Awarded a Commonwealth Scholarship to study for a DPhil at the University of Oxford

## **Skills**

- Experienced to expert with Python data science tools and SQL.
- Expert in MATLAB application development.
- Mathematical modelling, numerical simulation, data analysis.
- Analytical approach to problem solving, attention to detail, ability to work in a team or individual environment.
- Python, Snowflake SQL, SymPy, Snowpark, PyMC, pymc-marketing, bambi, statsmodels, SQLAlchemy, Pandas, NetworkX, Scikit Learn, Stan, Looker, Solidity, FactSet, Bloomberg, PySpark, TensorFlow, JAX, MATLAB, Google Cloud Platform, Amazon Web Services, AWS Lambda, Amazon Redshift, Docker, Amazon Elastic Container Service