

## Understanding diseases using machine learning

'I joined GSK in 2016, with a Masters in Computational Biology to complement the Mathematics BA. Now, nearly 5 years on, I work in a research-driven machine learning team dedicated to understanding, modelling, and predicting the complex behaviour of different diseases. Designing good models requires familiarity with the underlying mathematics, and I regularly rely on knowledge from a range of my old courses, from Differential Equations to Statistics to Graph Theory. My maths degree gave me the tools I need to keep on top of the fast-paced world of machine learning.'

*Finnian Firth, Emmanuel College, Machine Learning Engineer at Glaxo-SmithKline*



## Managing investment portfolios

'Maths taught me how to think. After finishing my maths degree, I went to Goldman Sachs trading desk, then joined Bayview as a portfolio manager. The more I advanced my finance career, the more I learned to appreciate the skills that the maths degree at Cambridge equipped me with. Not only do I apply the maths modelling knowledge daily, but I also leverage my analytical and critical thinking whenever I navigate uncharted waters. The rigorous logic training gave me the tool to learn new knowledge, the ability to find novel solutions, and the confidence to take on new challenges.'

*Zhu Gong, Lucy Cavendish College, Head of European ABS at Bayview Asset Management*

## Doing a PhD in Algebraic Number Theory

'The Cambridge maths course is challenging, exciting and rewarding – it teaches you to learn and more importantly enjoy a lot of beautiful maths, and has given me the perfect platform to start a PhD and career in research. During my time there I met people from a huge variety of backgrounds and interests, as well as friends who I will keep for life!'

*Muhammad Manji, Trinity College, PhD student in Algebraic Number Theory at the University of Warwick*



## Developing software to analyse financial risk

'After graduating in 2020, I now work as a data scientist in a Risk Technology team at Morgan Stanley. My job varies from coding to analysing trends and I use the problem solving skills from my maths degree every day.'

*Anna Neely, Murray Edwards College, Technology Associate at Morgan Stanley*

## Making AI work for us

'After graduating in maths from Cambridge, I did a PhD in Physics at Queen Mary University of London, then I switched into AI, working in industry, before going back into academia, with postdocs in Montreal and Oxford. Most recently I joined DeepMind, where I now work as a Research Scientist. My research is focused on how to correctly specify what we want an AI system to do. It involves a mixture of maths, computer science, statistics and philosophy. My maths degree is the foundation of all of my research - I think it can provide students with the ability, outlook and confidence to tackle challenging mathematical problems across the sciences'

*Zac Kentonn, Emmanuel College, Research Scientist at DeepMind*



### **Developing machine learning models for text**

"Two years after graduating from Part III, I now develop machine learning models for text at AstraZeneca. This is a really exciting time, as I am a part of introducing this new, disruptive technology into a careful and regulated industry. I notice the value of my maths degree everyday: we were trained to have a sensitivity for hidden assumptions, the creativity to propose new ones, and the skill to work out the outcome, which is useful for designing machine learning systems, coding, and even big project meetings. Also, being a maths graduate means the symbols in machine learning papers are nothing to fear!"

*Khyla Kadeena-Miller, Trinity College, Data Scientist at AstraZeneca*



### **Communicating science news to a non-specialist audience**

"Going into journalism after doing a maths degree always felt like an odd move. I knew I'd be competing with lots of people with what seemed to me to be far more appropriate degrees. I was dead wrong; the media is well aware that there are too few science-literate people in the business, and we are in demand. I didn't start by covering science. In the course of my career I've been sent to the top of Mont Blanc and to two different swingers' clubs. I've also been arrested in three different countries, only once for espionage. Eventually, though, science called me back. I've spent ten years happily covering the most exciting subject in journalism - including, in 2017, being sent back to my old department to interview Stephen Hawking."

*Tom Whipple, Churchill College, Science Editor at the Times*

### **Working as an actuarial consultant**

"After graduating from Newnham College, I am now working as an actuarial consultant and studying towards the actuarial professional qualification. At work, mathematics comes everywhere in modelling and calculations for client deliverables. A Maths degree has allowed me to obtain good problem solving skills which greatly help my effectiveness and efficiency working as a consultant."

*Ruby Zhao, Newnham College, Actuarial Associate at PwC*



### **Building open-source tooling for the data ecosystem**

"I help build and implement open-source libraries and tools for the data ecosystem, helping data engineers, scientists and researchers around the world democratise cutting-edge data analytics. I've also helped our teams use these tools for various projects, of which my favourite was building a self-learning driving agent to help a Formula E racing team win. The analytical and problem-solving skills I picked up during my maths degree at Cambridge come into play every day, but some of the more specific courses I've taken, like Bayesian inference are often directly applicable to my work."

*Zain Patel, King's College, Software Engineer at QuantumBlack*

### **Developing and evaluating climate models**

"Thirty years after going up to Cambridge to read Maths, I am now a science fellow at the Met Office leading a group of scientists working on modelling the global ocean and the shelf seas. I am also a coordinating lead author of the Ocean, Cryosphere and Sea Level Change chapter for the IPCC Sixth Assessment Report. My work has included managing people and projects, publishing research papers and briefing government departments, but my maths degree underpins every aspect of my work."

*Helene Hewitt, Fitzwilliam College, Science Fellow at the Met Office*

