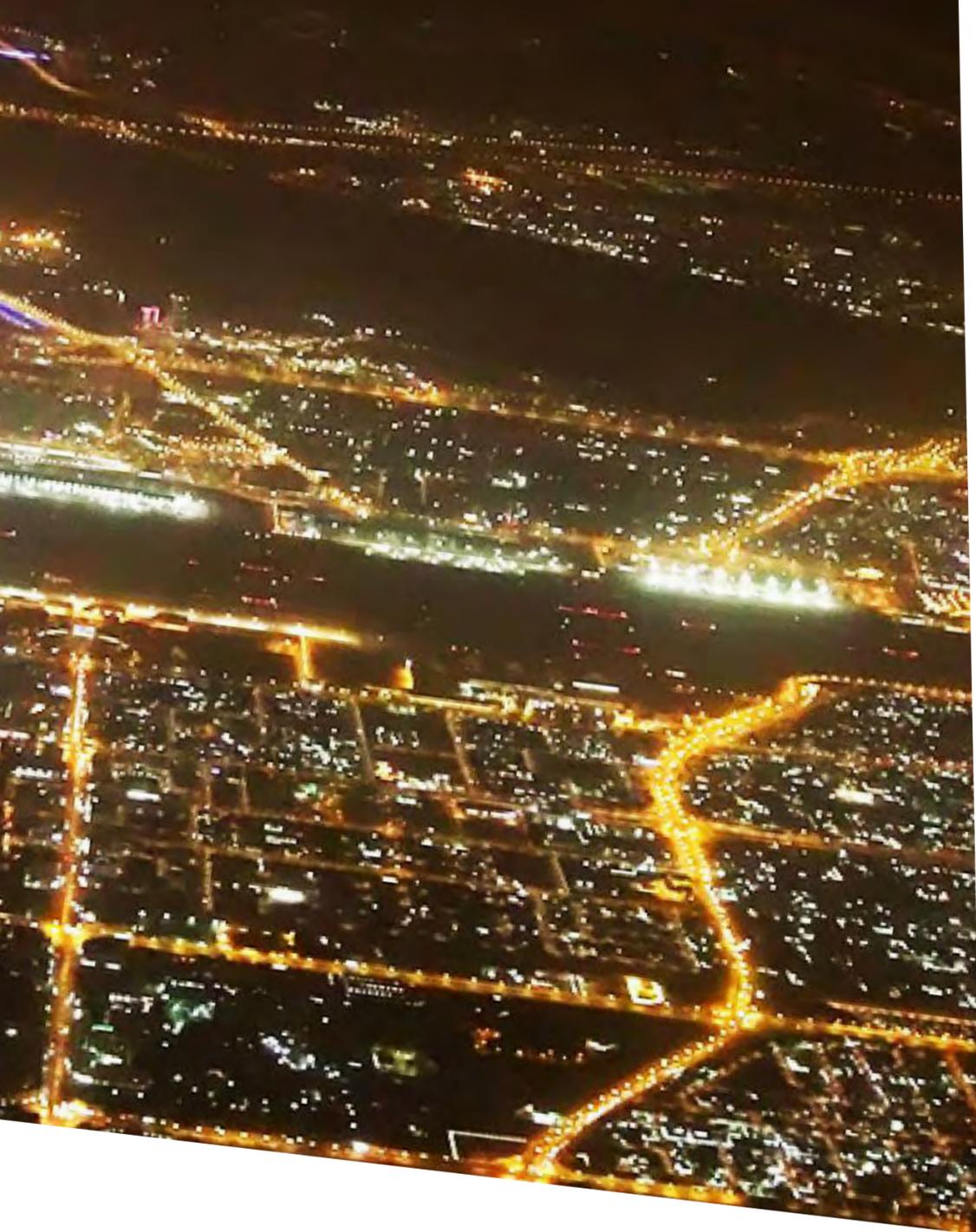


Section 1.4

Partnerships and collaborations



Project Bluebird, a partnership between the Turing and NATS, is aiming to develop an AI system that collaborates with humans to control a section of airspace

Section 1.4

Partnerships and collaborations

Roche

The Turing this year launched a **five-year strategic partnership** with the Swiss healthcare company Roche – our first pharmaceutical partner. The collaboration will address critical research questions in the area of personalised healthcare, including why the same treatment can affect different patients in different ways. Teams of data scientists from the Turing and Roche will develop advanced analytics to generate insights from multiple types of healthcare data, with the aim of understanding the impact of patients' individual characteristics on their disease and treatment outcomes. Together, we hope to accelerate the evolution of personalised healthcare and ultimately enhance clinical care for people around the world.

Office for National Statistics

A new **strategic partnership** between the Turing and the Office for National Statistics (ONS) is aiming to produce near-real-time statistics to help track changes in the UK economy. The collaboration, which is initially running for two

years, will see ONS analysts and data scientists work closely with Turing researchers on a range of projects, including economic nowcasting (creating models that track changes in retail prices, household spending and income at a local level), and developing tools to allow the sharing of sensitive data while preserving privacy. More detailed and accurate monitoring of the UK economy promises to help inform policy and in turn improve people's economic wellbeing.

DSO National Laboratories

The Turing has formed a strategic partnership with DSO National Laboratories, Singapore's national defence research agency, which is investing £3 million over three years in research aimed at improving security in both the online and physical worlds. Projects include creating an AI model to detect online abuse in multiple languages and dialects (Singlish, Malay and English), and using natural language processing to automatically extract location information from social media posts, which could be used to track terrorists and other security risks.

NIHR Research Support Facility

A new **Research Support Facility** based at the Turing will help to improve the understanding of multiple long-term health conditions. The facility, a partnership with Swansea University, the University of Edinburgh and MRC Harwell, is supported by a £3 million investment from NIHR, which is funding up to £23 million of research to better identify, prevent and treat clusters of multiple long-term conditions. With two-thirds of adults aged over 65 expected to be living with multiple long-term conditions by 2035, this is a much-needed initiative. Our Research Support Facility will offer advanced AI and data science support to the research projects funded by this call.

Prosperity partnerships

This year, the Turing was the recipient of two **prosperity partnerships** – grants from EPSRC that fund research collaborations between UK-based businesses and academic institutes.

- **Project Bluebird** is a partnership between the Turing and NATS – the UK’s leading air traffic control company. The research vision is to deliver the world’s first AI system that collaborates with humans to control a section of airspace in live trials, which will put the UK at the forefront of technical advances in this sector. More broadly, the project will explore the

use of technologies such as digital twins and machine learning in air traffic control, helping to modernise UK airspace as the country’s aviation industry aims to achieve net zero carbon emissions by 2050.

- **Project FAIR** is a partnership between the Turing and organisations including HSBC and Accenture, dedicated to developing a framework for responsible adoption of AI in the financial services industry. AI technologies have the potential to unlock significant growth in this sector through, for example, personalised products, improved cost efficiency and more effective management of security risks. This interdisciplinary research programme will seek to address the key challenges, exploring how the financial services industry can build AI systems that are fair, robust and transparent without compromising the privacy and security of service users.

Royal United Services Institute

The Turing’s defence and security programme this year began a collaboration with the Royal United Services Institute (RUSI) – a prestigious UK defence and security think tank. Working with RUSI’s Technology and National Security Programme, we are co-writing two policy papers, the first of which (published in June 2022) aims to establish an independent evidence base to inform future government policy development around the use of publicly available information for national security purposes.

Rosalind Franklin Institute

A new operational alliance with the Rosalind Franklin Institute will use AI to tackle a major bottleneck in the realm of molecular biology. Directly observing the molecular structure of proteins within their native cells promises to transform our understanding of human health and biology, and this is now possible through a microscopy technique called cryo-electron tomography (CryoET). However, off-the-shelf analysis tools struggle to identify molecular structures in complex CryoET datasets. Our collaboration will develop specialist machine learning tools to detect structures in data from the Franklin’s latest CryoET instrument. The ability to observe proteins in their natural environment could ultimately lead to new ways to treat diseases associated with protein misfolding, such as Alzheimer’s and cystic fibrosis.

International engagement

The Turing continues to build relationships with organisations and institutes around the globe. This year, we have established new partnerships with Switzerland’s Roche (page 24) and Singapore’s DSO National Laboratories (page 24), continued our collaboration on the world’s first 3D printed bridge in Amsterdam (page 40), and led a research project with the Global Partnership on Artificial Intelligence (GPAI), involving partners in countries including Chile, Uganda and Pakistan (page 38).



Our '**Trustworthy digital infrastructure for identity systems**' project, funded by the Bill & Melinda Gates Foundation, has moved into its active research phase, developing technologies aimed at enhancing the privacy and security of national digital ID systems. The team is helping the Indian organisation MOSIP (Modular Open Source Identity Platform) in a number of areas, including identity fraud detection and secure identity authentication. The team has also begun collaborations with the governments of India and Philippines – two countries that are at different stages of their digital ID journey. In September 2021, the project held its first **Turing trustworthy digital identity conference**, which saw industry leaders, academics and policy makers from 29 countries discuss ways to minimise the ethical risks of digital IDs.

Also this year, the Turing began a collaboration with China's Beijing Academy of Artificial Intelligence through a two-day workshop on AI for environment, climate and sustainability in March 2022. Supported by the British Embassy in Beijing, the University of Exeter and Peking University, the workshop brought together experts from the UK and China to share knowledge on the use of AI to address environmental challenges. The outcome was a list of recommendations for future joint activities.

We established a **memorandum of understanding** (MoU) with Visual Intelligence – a Norwegian research centre that specialises in AI-powered image analysis. Our partnership will explore the use of deep learning to extract useful information from images to address global issues such as threats to wildlife from climate change. Also in northern Europe, we built on our MoU with the Finnish Center for Artificial Intelligence (FCAI) with a **one-day event** in February 2022, at which researchers from the Turing and FCAI shared their machine learning work.

We also developed new links with Italy through the **UK-Italy robotics and AI research collaboration workshop** in Rome in March 2022, which convened AI and robotics researchers from the two countries to identify priority topics for future collaborations.

Finally this year, the Turing launched its first international seminar series – 'Do great minds think alike?' – which looks at how AI can transcend geographical and disciplinary boundaries to address some of today's most pressing problems. Our three online events so far have explored how tech can help to tackle modern slavery, how AI can address the humanitarian cost of climate change, and the hidden human labour behind AI systems.

'Do great minds think alike?' is the Turing's first international seminar series