AI in Oxfordshire

The University of Oxford is known around the globe as a leading research institute. In 2024 it was ranked #1 for the eighth year. It was also ranked #5 for engineering and technology
(2024 Times Higher Education)

Artificial intelligence (AI) is making an increasing impact on the worldwide economy – and our lives. It can vastly improve productivity and has been instrumental in creating new products and helping to make breakthroughs in sectors from life sciences to mobility to computing – all areas in which Oxfordshire excels.

An array of companies and research groups in Oxfordshire are leading the competition to reap its benefits.

University of Oxford

The University of Oxford is a global centre for world-class research and development in artificial intelligence, ranging from quantitative and computational principles through to practical applications in medicine, robotics, mobility, the social sciences and humanities. Oxford researchers are at the forefront of the AI revolution particularly in machine learning and machine vision, helping to make scientific breakthroughs. The University runs courses in conjunction with the Said Business School to help businesses understand its potential.

The University is home to many centres for expertise in AI, including:

The EPSRC Centre for Doctoral Training in Autonomous Intelligent Machines and Systems at the University's Engineering Department collaborates with a number of industry partners, including Amazon Web Services (AWS), Google Deep Mind, Samsung, Schlumberger, Toshiba and Toyota.

- The Human Machine Collaboration is an international multidisciplinary collaboration between universities, industry and investment, providing a platform for large-scale research utilising AI and robotics.
- The Institute for Ethics in AI advises industry and government on AI-based security and the ethical considerations related to the technologies.
- The Oxford Internet Institute is dedicated to advancing understanding of life online.
- The Oxford Machine Learning Research Group is applying machine learning methodology to problems in science, engineering, industry and commerce, and works closely with the Oxford Man Institute which focuses on quantitative finance.
- The Oxford Robotics Institute's work includes machine learning and AI, computer vision, fabrication, multispectral sensing, perception, and systems engineering.

Oxford Brookes University

Oxford Brookes University offers advanced education through its Advanced AI and Robotics Group, which encompasses health, theoretical applications of dynamic systems, reinforcement learning and developmental robotics. Its Visual Artificial Intelligence Laboratory specialises in the application of machine learning and AI to fields including robot-assisted surgery, activity recognition and scene interpretation.

Harwell Campus

Harwell Campus hosts over £2 billion worth of facilities such as Diamond Light Source, the UK's national synchrotron, and the Faraday Institution. It is a world-renowned research centre for the physical and life sciences, laser technology and high performance computing, and plays a leading role in the UK space sector. Harwell's Space, HealthTec, EnergyTec and Quantum clusters attract innovative companies and numerous multidisciplinary collaborations.

The Rosalind Franklin Institute at Harwell Campus is pioneering disruptive technologies including AI and robotics to accelerate drug discovery and develop new diagnostics. The centre is the base for the world's first automated discovery facility to produce drugs up to ten times faster, transforming the UK's pharmaceutical industry.

Investing in AI via the University of Oxford

Investors in the region can benefit from collaboration with the University of Oxford and its exciting spinouts. Oxford University Innovation, the University's commercialisation arm, has successfully spun out over 200 companies, including the fast-growing universal autonomy developer Oxa.

Oxfordshire has a successful record in securing investment to promote growth. Oxford Science Enterprises is an £850 million fund designed to help Oxford's outstanding scientists build and grow great businesses that can improve the world. Investors have provided seed and follow-on funding ranging from £100,000 to £10 million.

Oxford Investment Opportunity Network (OION) is a business angels' network for investors and private companies interested in investing in spinout companies from the University of Oxford. It has recently invested in Scrub AI.

Oxfordshire's AI centres

Oxfordshire's AI companies are located in centres including Harwell, Milton Park, Oxford BioEscalator, Oxford Centre for Innovation, ARC Oxford, Oxford Science Park, Wood Centre for Innovation, and various central Oxford locations.

Key sectors

AI and Oxfordshire life sciences

Oxfordshire is a global driver of artificial intelligence research and innovation in drug discovery, diagnostics and precision medicine.

Innovate UK and industry are together investing more than £17.5 million in developing AI healthcare applications with the University of Oxford. Led from Oxford's Big Data Institute, the National Consortium of Intelligent Medical Imaging is funded by the UK Government's Industrial Strategy Challenge Fund to drive innovation in the use of artificial intelligence for improved diagnosis and delivery of precision treatments for cancer, heart disease, genetic disorders and other conditions. NCIMI aims to build a pipeline for innovation to allow new clinical imaging AI tools to be developed.

AI companies focused on healthcare that have successfully spun out from Oxford University include Brainomix, Caristo Diagnostics, Optellum, Perspectum and Ultromics (see pages 5-7).

AI and Oxfordshire robotics

Much of the earliest pioneering work into robotics was carried out in and around Oxford and the region continues to lead the way today. Research into robotics at the UK's Atomic Energy Authority (UKAEA) has enabled the safe decommissioning of nuclear plants. Today the organisation is exploring how robots and automation can be used to perform maintenance tasks in nuclear fusion plants. Two Oxfordshire centres offer unique world-class expertise – and many opportunities to collaborate: The Remote Applications in Challenging Environments (RACE), based at the Culham Science Centre, offers outstanding test facilities to companies from around the world to develop robotics and AI solutions.

The Oxford Robotics Institute has a world-leading reputation in large-scale mobile autonomy and offers industrial collaboration across several sectors. Its Applied AI Lab (A2I) is exploring how to enable robots to operate robustly and effectively in complex, real-world environments. ORI membership buys partners deep immersion and access to its full portfolio of research and activity, accelerating and catalysing knowledge transfer.

AI in numbers

70%
percentage of companies that will adopt at least one type of AI technology by 2030
(McKinsey Global Institute)

$15.7 trillion
amount AI could contribute to the global economy by 2030
(PwC)

£105 million
grant funding received by UK companies
(source: Beauhurst)

14%
percentage of increase in AI-led global GPD by 2030
(PwC)

$8.2 billion
amount raised by 1,305 UK machine learning companies in 1,868 funding rounds
(source: Crunchbase)

15
AI hubs in Oxfordshire
(source: Beauhurst)

A snapshot of AI companies in Oxfordshire

Healthcare and life sciences

Arctoris*

Arctoris, a tech-enabled biopharma company, has established the world's first fully automated, robotic laboratory dedicated to accelerating drug discovery and generating datasets for AI modelling.

It is based at Milton Park.

Spun out from the University of Oxford in 2016, it has raised $10 million in three rounds, the latest in 2019, with investors including German entrepreneur Alexander Straub and US-based Formic Ventures.

Brainomix*

Brainomix has pioneered the development of an AI platform that automates validated imaging biomarkers to improve both diagnosis and treatment decisions. It is rolling out its AI-powered imaging products to expand its portfolio beyond stroke, including developing novel solutions for lung fibrosis and cancer.

Brainomix is based at Seacourt Tower in Oxford.

A University of Oxford spinout, Brainomix raised £16 million in a series B round in 2021, co-led by existing investors

Boehringer Ingelheim Venture Fund (BIVF) and Parkwalk Advisors, along with new investor, Tencent Holdings, and included participation from Oxford University Innovation Fund (OUIF). It received NHS UK Govt funding from the £21 million AI NHS fund in 2023.

Caristo Diagnostics

Caristo Diagnostics' CaRi-Heart® was developed with funding from the British Heart Foundation (BHF). It harnesses AI to analyse images of the heart arteries and predict the likelihood of a heart attack – based on information that is not otherwise available using current diagnostic techniques. CaRi-Heart® received the CE mark, under the new MDR process, in February 2021 and is commercially available in Europe.

Caristo is based in the Botley Road, Oxford.

Caristo was founded in 2018 by cardiologists at the University of Oxford. In April 2023 it secured a £13 million Series A funding round, led by Oxford Science Enterprises and joined by BGF, Longwall Venture Partners, Oxford Investment Consultants LLP, Oxford University and other investors.

*Companies with overseas investors

Etcembly

Founded in 2020, Etcembly is using a unique blend of machine learning and immunology expertise to deliver the safest and most powerful TCR immunotherapies through rapid computer-assisted engineering. It is building EMLy™, a pioneering machine learning platform that will accelerate the understanding of immune repertoires.

Etcembly is based at Harwell Campus where it is using the biophysical instruments available at the Harwell Research Complex.

Its 2022 seed round with a group of private investors was oversubscribed.

Exogene

Exogene is a techbio startup using deep learning to unlock the discovery of innovative TCR-based therapies for cancer treatment.

It is based at the Oxford BioEscalator.

Venture-backed by angel investors, it raised $2 million in 2022.

Exscientia*

Exscientia combines the latest AI technique with experimental innovation to engineer a new set of processes for drug discovery. It was the first company to automate drug design and the first to have an AI-designed molecule enter clinical trials.

It is based at Oxford Science Park.

It raised $823 million in VC funding and floated on Nasdaq in 2021 with valuation of $2.9 billion, one of largest floats by any European biotech company. Investors include Alexion Pharmaceuticals, RA Capital Management, AstraZeneca, Flagship Pioneering, Wellington Management Company, Viking Global Investors.

Mirada Medical

Founded 2007, Mirada Medical is a prominent global brand in medical imaging software. Mirada's innovative software solutions are routinely used in radiology, molecular imaging, radiation oncology and in multidisciplinary meetings throughout hospitals, imaging centres and cancer centres worldwide.

It is based at the Oxford Centre for Innovation.

It has raised $10.42 million over four rounds, with main investor UK-based Apposite Capital.

Optellum*

Optellum uses AI to gather data from CT scans for lung patients. It was named in the top 150 most promising digital health companies in 2022 and has collaborated with the J&J Lung Cancer Initiative.

It is based at the Oxford Centre for Innovation.

Investors include US companies Intuitive Ventures and Black Opal Ventures.

Oxford Drug Design*

A new name in AI-based drug discovery, Oxford Drug Design is a biotechnology company founded in 2017 with a proprietary computational and machine learning platform.

It is based at the Oxford Centre for Innovation.

It has total grant and equity funding of over £10 million with investors including ACF Investors, o2h Ventures, Jonathan Milner, a number of returning angels and new investors and the US-based R42 Group.

Oxomics

In October 2023, Oxomics was awarded £1.25 million in Innovate UK Biomedical Catalyst grant funding to accelerate the development of its AI and metabolite-based cancer detection technology.

It is based in Headington, Oxford.

Kick-started in December 2021 with an Health Innovation Oxford and Thames Valley Accelerator Award, Oxomics received additional mentoring from Roche Diagnostics UK and Ireland and demonstrated the impact of their diagnostic in the NHS.

Perspectum*

Perspectum is a precision health company which develops medical imaging tools to improve the diagnoses of metabolic diseases and cancer.

It is based at ARC Oxford and has a base in Dallas, Texas, USA.
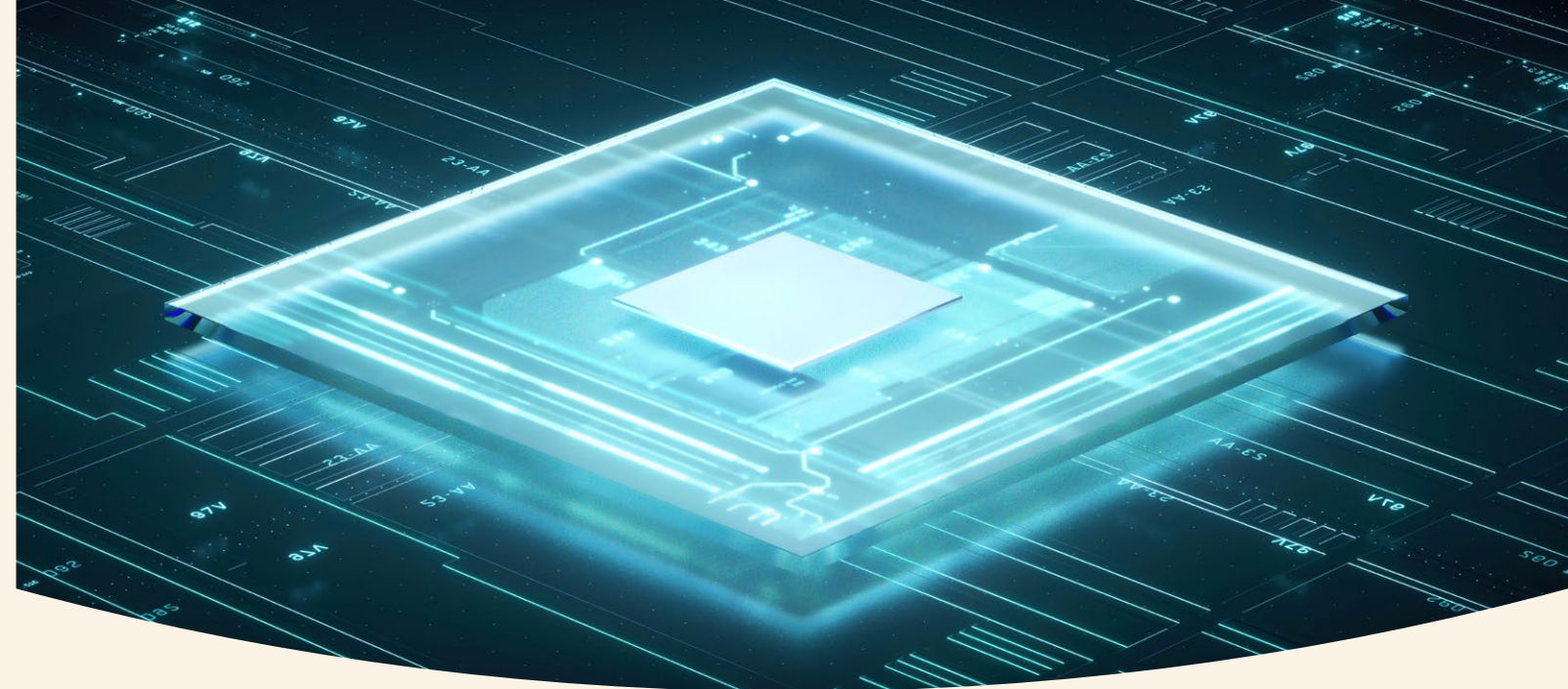
In 2023 it completed the second close of its $55 million Series C funding round, with an additional $19 million investment led by US investment bank Oppenheimer.

Ultromics*

Ultromics works in the detection of coronary heart problems and its AI platform is being trialled in NHS hospitals.

It is based at ARC Oxford.

It was supported by Oxford Science Enterprises to raise an initial £10 million in initial funding, and in 2021 it raised $33 million in a Series B funding round led by the Blue Venture Fund(Chicago) with participation from Optum Ventures (Boston London) GV (Google ventures), and existing investor Oxford Sciences Innovation.

Technology and computing

Diffblue

Diffblue spun out of the AI research group at the University of Oxford and delivered its first software in 2020. Its AI autonomously writes Java unit tests that catch regressions early, to help companies ship quality code faster and more frequently.

Diffblue is headquartered in Worcester Place in central Oxford.

UK investors include IP Group, AlbionVC, Goldman Sachs, Oxford Science Enterprises, and Oxford University.

Machine Discovery

Machine Discovery was spun out of the physics department of the University of Oxford. It is a software company which uses machine learning technology to accelerate compute-intensive optimisation and simulation tasks.

It is based at Oxford Science Park and in Santa Clara, California.

In Sept 2023, it secured £4.5 million of funding in an investment round led by BGF, one of the UK's largest investors, and UK investors East Innovate, alongside Foresight WAE Technology Funds, UK Innovation and Science Seed Fund (UKI2S), and start-up investor Oxford Technology.

Mind Foundry

Mind Foundry develops AI solutions that help organisations in the public and private sectors tackle high-stakes problems, focusing on human outcomes and the long-term impact of AI interventions. It was spun out of the University of Oxford's Machine Learning Research Group.

It is based in Summertown, Oxford.

In 2020 it raised $13.6 million in Series A funding led by London-based Aioi Nissay Dowa Insurance Co and existing investors Parkwalk, Oxford Sciences Innovation, the University of Oxford, and the Oxford Technology and Innovations EIS Fund. The company has raised a total of $24.4 million to date.

Oxford Semantic Technologies*

A spinout from the computer science department of the University of Oxford, its RDFox technology, the only knowledge graph that operates in-memory, is an enabler for the next generation of the Internet of Things.

It is based in Littlegate Street in Central Oxford.

In 2019 it raised £3 million in seed funding from OSI and Samsung Ventures.

Salience Labs*

This photonic chip company sets out to solve the challenge that the growth in AI presents to data movement in a world where traditional semiconductor technology can no longer scale to keep pace with innovation. Salience Labs evolved as a joint spinout between Oxford and Munster University Germany.

Salience Labs is headquartered at Grassroots on the Woodstock Road in central Oxford.

It has received funding from investors including Cambridge Innovation Capital, Oxford Sciences Enterprises, Oxford Investment Consultants, Silicon Catalyst, Deeptech Labs and the global semiconductor industry including former CEO of Dialog Semiconductor Jalal Bagherli and the Goh Family Office in Singapore, raising $11.5 million over three rounds.

Future mobility and autonomy

Oxa*

Oxa develops software designed to power driverless vehicles, with technology that uses features such as cameras and lasers in order to sense and navigate the surrounding environment.

Oxa is based at ARC Oxford.

Oxa has raised approximately $225 million to date, with $140 million in a Series C investment in 2023, from financial and strategic partners from North America, EMEA and APAC.

The funding will drive Oxa's geographical expansion.

Streetdrone

Autonomous car company focused on accelerating the development of autonomous vehicles and autonomous vehicle software with their StreetDrone ONE R&D vehicle and the StreetDrone XCU providing connectivity into any vehicle platform.

It is based in Osney Mead, Oxford.

It has raised £7.21 million over three rounds and has received government and grant funding.

Everyday applications/enhancing human productivity

Aistetic

University of Oxford spinout Aistetic's 3D body modelling platform uses AI to scan users' bodies and provide accurate measurements for clothing retailers, fitness, weight loss and digital healthcare providers, addressing problems as excess inventory and clothing wastage.

Aistetic is Abingdon-based.

Founded in 2019 it has been awarded funding of around £1.2 million through two Innovate UK Grants, and a Future Fashion Factory Grant.

Lurtis

Lurtis develops IA-based technology to drive digital innovation in businesses.

It has bases at the Wood Centre for Innovation in Oxford and in Madrid, Spain.

It has had one angel investor round.

Navenio*

Navenio develops technology for indoor navigation, in sectors such as healthcare. Its realtime platform for workforce efficiency and tasking in healthcare uses proprietary smartphone indoor localisation.

It is based at St Aldates in Oxford.

In September 2023 it raised £9 million in a Series A funding round with investors including Big Pi (Greece) GK Goh (Singapore).

*Companies with overseas investors

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