

# Research, Innovation and Enterprise

Shaping the Future  
2022-2023



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## Acknowledgements

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# Research, Innovation and Enterprise

**Hello and welcome to this first edition of Research, Innovation and Enterprise: Shaping the Future, showcasing some of our colleagues' work**

The last few years have seen great changes both at Oxford Brookes and beyond, as a new world order emerges from the pandemic, and we continue to make tentative steps towards 'normality'. The state of this post-covid world has shown the need for applicable, impactful research to improve people's quality of life and society as a whole.

This edition highlights how the quality and global impact of our research reaches out to engage ordinary people, influences policy makers, and provides innovative solutions to address major challenges, such as the cost of living crisis. It also shows examples of our work in partnership with businesses to help them respond to new challenges. We use our expertise to co-create new approaches to innovation, help them to grow, increase productivity and remain competitive.

We also help new businesses to get off the ground: this year we inaugurated our new Enterprise Centre, established in collaboration with the Oxford Local Enterprise Partnership (OxLEP). The Enterprise Centre in conjunction with our Bio-Innovation facilities provide lab and office space to spin-outs and start-ups as well as access to our academic expertise and our pool of talented graduates and post-graduates.

Finally, our inclusive and vibrant community of researchers, innovators and entrepreneurs is focused on nurturing talent. We create opportunities for our students and early career researchers by enabling them to gain the skills and confidence to contribute to a variety of sectors spanning academia, industry, health, local and national government as well as NGOs.

**I hope you enjoy reading about what we do.**



**PROFESSOR LINDA KING**  
Pro Vice-Chancellor, Research  
and Global Partnerships



## Introduction to Oxford Brookes New Directorate for Research, Innovation and Enterprise

The newly established Directorate for Research, Innovation and Enterprise (RIE) aims to strengthen our Research, Innovation and Enterprise activities. It builds on the achievement of the most recent national Research Excellent Framework (REF 2021) where 97% of our research was judged to be internationally recognised. Of this 70% was deemed to be world-leading or internationally excellent. The results of the national Knowledge Exchange Framework (KEF 2022) show that Oxford Brookes is in the top 10% of UK Higher Education Institutions for Intellectual Property Income.

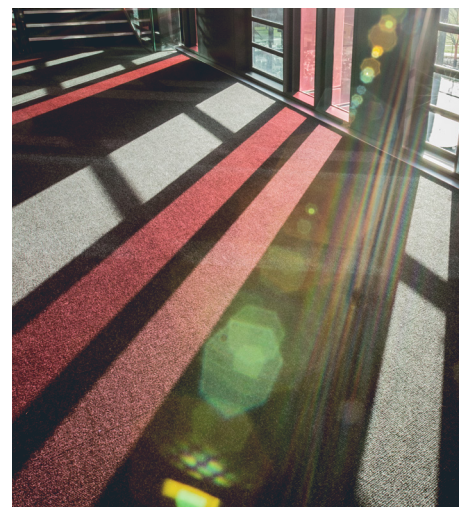
RIE comprises three teams to help the university achieve its ambitions as set in the Research and Innovation Pillar of Oxford Brookes 2035 strategy, and these are:

- Research Support and Governance that supports researchers development, bids for external funding from application to completion and ensures best practice in research ethics, accountability and transparency;
- Knowledge Exchange and Impact that facilitates collaborative work with industry, for example through InnovateUK Knowledge Transfer Partnerships, Public and Community Engagement and research impact;
- Enterprise is divided into two teams. Enterprise Support helps students, staff and recent Brookes graduates to develop entrepreneurial skills and mindsets, through a programme of activities and co-working space for future entrepreneurs. The Enterprise Centre (ScaleBase), a partnership with OxLEP, supports the growth and development of spin-outs and start-up in the life science and digital tech sectors.



**PROFESSOR SIMONETTA MANFREDI**

Director of Research,  
Innovation and Enterprise



RIE provides a first point of entry for our stakeholders both locally and globally to access our community of researchers, innovators and entrepreneurs across Brookes four faculties (Humanities and Social Sciences, Life Sciences, Oxford Brookes Business School and Technology, Design and Environment). It also offers networking opportunities through events to connect our community of experts and our pipeline of talented students and graduates with policy makers, external organisations and members of the public.

For more information, contact Professor Simonetta Manfredi (Director of Research, Innovation and Enterprise) here: [rienquiries@brookes.ac.uk](mailto:rienquiries@brookes.ac.uk)

# Impact of Research





## Beyond the Bookshelf – the Impact of Research

‘Impact’ is the difference that researchers’ findings make in changing the lives of others, on a scale from local environments and livelihoods to global concerns such as climate and biodiversity.

Across Brookes we have world leading and internationally excellent examples where Brookes research has made an impact, as highlighted in our map. But local initiatives and collaborations leading to change can have just as much significance, and we are proud that the seeds of research impact often begin in local Oxfordshire communities. The Think Human festival and Science Bazaar, the latter featured in this publication, are prime examples.

Research is often publicly funded and we have a moral duty to use our findings to benefit others. For me, research belongs just as much outside the university, as within.

**For more information contact**  
**tamiller@brookes.ac.uk**  
**or visit our research impact showcase at**  
**[www.brookes.ac.uk/research/research-impact-showcase/](http://www.brookes.ac.uk/research/research-impact-showcase/)**



**PROFESSOR TINA MILLER**  
 Research Impact  
 Champion



## Poetry, in Motion – Humanities Research in a Post-Truth World

**Research in humanities subjects can often slip through the cracks of public interest, being perceived as not ‘cutting-edge’ or as topical as STEM or scientific research. But for Dr Niall Munro, from the School of English and Modern Languages, literature-based subjects have never been more relevant than in the present times.**

The Poetry Centre’s case study for the latest national Research Excellence Framework in 2021 brought together research by Dr Jane Potter and myself; her work on Wilfred Owen and the neglected women poets of the First World War, and my research into the commemoration of war and the dangers of certain kinds of nostalgia. We invited military veterans to workshops to write poetry about their own military experiences, to examine a more contemplative, less nationalistic attitude to commemorating conflict, and explore more nuanced perspectives on veterans beyond the ‘heroic’ archetype.

Societal impact is difficult to define, but remains an important metric for university research. It may mean immediate systemic change, or something far subtler. Humanities subjects challenge people’s perceptions, offering fresh ideas and perspectives. The veterans’ war poetry workshops, Professor Simon Kövesi’s research on the working-class voices of John Clare’s poetry, and Dr Eric White’s work on driving digital inclusion for young people are just a few examples.

Humanities research and teaching, being less straightforwardly quantifiable, has been undervalued in recent years to an insidious extent. Job losses and precarious furlough schemes in the pandemic hit an unsupported arts sector brutally. In this age of student loans, soaring bills and vocational training opportunities, we have a responsibility to make higher education seem genuinely palatable, not merely in terms of salary prospects, but in the modes of thinking students absorb and learn to critique at university. A country that reduces critical voices is ill-at-ease with itself, and risks creating a blander, less self-aware, more parochial society.

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**DR NIALL MUNRO**  
 Senior Lecturer in  
 American Literature



## ‘Calling in the Cavalry’ – A New Approach to British Army Reserves?

The British Army Reserves provide the armed forces with part-time trained personnel to be called to serve with their full-time colleagues. Old attitudes and prejudices, however, are sometimes resistant to change. A long-term research endeavour, led by Professor Vince Connelly with the UK Ministry of Defence, has highlighted cultural strain between reserves and full-time members, and how to counter it.

Internationally, many armies are embracing the systemic integration of part time and full time soldiers for budgetary reasons. Often, reservists provide personnel and capability that are not routinely needed, and can be held in the civilian population until required. Many recent conflicts have demonstrated the need to draw upon them quickly, highlighting the onus on successfully integrating the two in Britain. My research exposes how workplace tensions can unravel proposed structural changes and explains why previous integration attempts have failed. It also lays bare the scale of the cultural change required for future attempts to succeed. These findings have helped the MoD shape their Future Reserves 2020, as well as other more recent programmes.

I believe the key issue is perception. This cultural friction could perhaps be dismissed as regular armed forces deriding reservists for not sharing their breadth of experience. But the truth is not so simple. For more lasting integration to happen, a lack of awareness of the ‘lived experience’ of the ‘other’, which goes both ways, must be addressed. Each class faces their own unique challenges that aren’t readily apparent to outsiders. Some measures, such as pairing reserve and regular units together to form cohesive bonds, are easier to implement than others. Happenstance can sometimes lend an advantage, such as in 2020, when coronavirus necessitated a rapid deployment of reserves, providing ample evidence of their utility and value. The effectiveness of my research and policy change recommendations has been acknowledged by MoD senior staff. The process may not be easy, but I believe it is certainly worth rising to.

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**PROFESSOR VINCE CONNELLY**  
Professor & Programme  
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## ‘From One University to Another...’ The UK-Brazil Gender Equality Partnerships

**Dr Charoula Tzanakou, co-director of the Centre for Diversity Policy Research and Practice (add link here) and an expert on gender equality policies in Higher Education, has led a collaborative partnership between Oxford Brookes and universities in Brazil. Funded by the British Council, this work aims to improve the experiences of women in STEM in Brazilian academia. This partnership tackled both the systemic biases of a traditionally male-dominated field, and the systemic problems of a country where gender and race equality has not always been given the spotlight it deserves.**

My interest in higher education policy stems back to my time in Brussels, where I managed projects on higher education policy in European universities. Doctoral education and academic careers became the focus of my PhD, especially those of STEM graduates and how gender could shape their career decisions in academia.

The British Council Partnerships came about when I was approached by Federal Fluminense University and Universidade Federal do Rio Grande do Sul to help them advance gender equality in their institutions by also drawing from Oxford Brookes significant experience and achievements on promoting gender equality.

Colleagues from different Brookes faculties and departments including Technology Design and the Environment, Life Sciences and the Business School, were involved in shaping our work. They provided a wide range of perspectives, shared by women academics in different disciplines. We delivered a series of workshops, established a website and an online handbook to help Brazilian institutions address gender equality issues and achieve better equality outcomes.

One sobering reality we faced was the systemic roadblocks in the Brazilian HE environment. Issues of gender equality are generally not well acknowledged in the country, and under

the former Bolsonaro administration higher education funding was scarce to address these issues. Getting recognition (let alone commitment) from academic leadership to act on our findings was difficult. Even when there wasn’t outright resistance, in several instances the relevant data, providing hard evidence of gender disparities just wasn’t available to Brazilian institutions. It was certainly a rocky road, but we were at least prepared for it.

As for what follows? We will certainly carry on working with our great Brazilian partners to address research questions and academic challenges regarding gender and intersectional inequalities. You will have to watch this space!

**Discover more about this project here:**  
**[www.brookes.ac.uk/research/units/obbs/projects/uk-brazil-gender-equality-partnerships](http://www.brookes.ac.uk/research/units/obbs/projects/uk-brazil-gender-equality-partnerships)**



**DR CHAROULA TZANAKOU**  
Co-director of the Centre  
for Diversity Policy  
Research and Practice



## ‘Step Right up for Stem’ The Science Bazaar Returns

**For getting young people – particularly girls – interested in STEM, sparking a love for science at a young age is crucial. Dr Ellie Beaman, Public and Community Engagement Coordinator and STEM Ambassador, has run the Science Bazaar since 2019, an annual celebration of the university’s research aimed at informing and inspiring children.**

The Bazaar has successfully run for nearly 14 years, with nearly 3000 visitors attending and taking part in activities. The pandemic changed the way we operate, necessitating the first entirely online Bazaar, with webpage activities and sessions on Zoom. It was a challenge, but one we rose to! The Bazaar owes a lot to the people who help run it – particularly Professor Linda King, Professor Anna Nekaris, Dr Ryan Pink, Beth Hill and Becci Cooper.

During the activities, kids see the passion that our scientists and researchers have for their work. With our return to campus, they also get to experience and explore a university, and identify higher education as a place which is for people like them. A visitor last year told me that her teenage son, who had never shown interest in science, had started thinking about an engineering career after taking part in one of Brookes Racing’s activities! Examples like this highlight the importance of platforms uniting scientists and young people.

I am particularly passionate about showcasing the amazing women in STEM at Brookes. Gordana Collier, Head of the School of Engineering, Computing and Mathematics at Brookes is just one such example, working as the principal adviser for Formula Student, who run one of the Bazaar’s most popular attractions.

We are looking forward to the next Bazaar, returning to campus on February 18th 2023! After our virtual Bazaar in 2021 and our first return on October 29th, welcoming people back will renew interest in our research and university. Each year we endeavour to grow the Bazaar, and February’s looks set to be bigger and better than ever!

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**DR ELLIE BEAMAN**

Public and Community  
Engagement Coordinator



# Innovation



## ‘Heating Versus Eating’: Can CO<sub>2</sub> Savviness Help Address Your Energy Bills?

Thousands of struggling families across the UK are being forced to choose between heating their homes and being able to afford their weekly shopping bill – but Professor Rajat Gupta’s energy mapping software could be the answer.

The cost of living has been an issue front and centre in the UK’s collective consciousness, with the crisis - touching all of our lives. Accordingly, the need to regulate our domestic energy use and carbon emissions has never been greater. The software programme DECoRuM® maps energy use by household and local area, identifying potential areas for energy improvements and bill reduction. The program makes areas of energy and CO<sub>2</sub> waste easily visualisable, facilitating behaviour change.

In one example solar photovoltaic systems and smart batteries were installed in 82 Oxford homes. This resulted in 117MWh per year of extra solar electricity, increasing the average annual solar self-consumption in that neighbourhood from 51% to 65%. Local authorities can use DECoRuM on an urban

scale to identify energy and CO<sub>2</sub> hotspots across neighbourhoods. With this information councils can implement appropriate action more widely.

DECoRuM was recently used during the National Green Deal programme, in a community bid to implement cavity wall insulation in 42 Bicester homes. It is also being adapted to increase rooftop solar power usage in India, projected to improve about 100 million homes by 2028. DECoRuM’s findings are being used by the UK’s Department for Business, Energy and Industrial Strategy to inform policy development for community and household energy use, in the hopes of taking a more preventative rather than reactionary approach to energy inefficiency in this country.

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## Knowledge, Where You Need it Most – The Basics of Knowledge Transfer Partnerships

Anna Verghese, Knowledge Transfer Partnerships (KTPs) Manager at Oxford Brookes, talks about what exactly a Knowledge Transfer Partnership involves, how they typically run, the benefits for all parties involved and how such a partnership is put together.

Anna Verghese, Knowledge Transfer Partnerships (KTPs) Manager at Oxford Brookes, talks about what exactly a Knowledge Transfer Partnership involves, how they typically run, the benefits for all parties involved and how such a partnership is put together.

KTPs are funded by Innovate UK to help companies develop by granting them specialised knowledge held by UK universities and other knowledge bases. The process is business-driven; a company will come to us with a problem that they need the university’s expertise to solve. Crucially, the company doesn’t have the expertise to do it themselves, but the university does.

There are many routes ‘in’ to a KTP. The national KTP webpage Knowledge Transfer Partnership guidance – UKRI has an index of KTP advisers local to you, who have a good understanding of what universities have applicable staff. But typically, an academic may have a pre-existing relationship with the business, and will already be aware of the company’s needs, and the bigger commercial picture. Alternatively, companies can approach Brookes directly through our online portal. I will then establish which academics are available and have aligning expertise. We will get both parties in the room, see how well their interests correlate and, with luck, a partnership is born.

Once the relevant grant money is secured, the university and company agree to appoint an ‘Associate’ – a recent graduate as a staff member based full-time at either the company’s offices or working remotely (or a mix of both), but on the university’s payroll. They will be appropriately academically qualified, and commercially aware.



This will not be a consulting assignment; it will be a longer-term effort (typically 2-3 years), and the Associate will get stuck in implementing the changes instead of offering advice. Although they are supported by academics back at Brookes, they are responsible for driving and coordinating the project themselves. For the final phase of the project, the Associate will ‘embed’ their new knowledge and practices, ensuring that their endeavours can function equally well once they have left.

Businesses typically reap new learnings and perspectives from KTPs as well as tangible results from the partnership’s conclusion. But ensuring the universities benefit from these KTPs as much as their partner companies is an important criterion we look for. The most successful KTPs will follow the research directions of academics and their departments. Resultant research that has widespread public application can be considered a worthwhile reward. The Associates themselves also benefit. 60-65% of companies will go on to offer the Associate a full-time role, and many accept. The project can be viewed as a two-year job interview, minus the employment liability; although the Associate ostensibly works at the company, it is the university that employs them.

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## A New Age of Visitor Management

Coronavirus has radically changed the *modus operandi* of many industries and sectors, most notably tourism – an industry radically dependent on visitors and face-to-face interaction. When Blenheim Palace – a key player on Oxford’s tourist scene and the local Oxfordshire economy – needed cutting-edge AI to track and gauge visitor numbers, a KTP was established to bring Brookes’ expertise in AI to a situation which tangibly benefitted the Palace.

Many UK tourist attractions and venues owe a great debt to word-of-mouth recommendations. This places great importance on visitor data, and using information like pre-booked tickets, as well as allowances for other factors – good weather, school and bank holidays, or other local events – to project visitor numbers. This broadly reliable exercise, however, was turned on its head by the pandemic. Unforeseeable rises and falls in variant transmission, government restrictions taken up and dropped without warning, and shifting public attitudes to coronavirus make data usage and gauging visitor numbers a herculean task.

The Palace used its pre-existing connections with Oxford Brookes Business School (OBBS) and the Technology, Design and Environment faculty – particularly with Dr Paul Jackson, Senior Lecturer in Information Management, Dr Diana Limburg, MBA Director at OBBS and Dr Matthias Rolf, Senior Lecturer in AI and Robotics – to hold discussions about how AI could best

improve Blenheim’s data use to boost business performance and efficiency. Both parties helped write the KTP application and when the funding was approved, the 32-month process began. The Smart Visitor Management System was conceived; a pair of subsystems that will draw in immense amounts of data to not only measure and monitor visitor activity but make sound predictions about when numbers will peak or trough. Currently, teams at the Palace can plan up to 30 days ahead of time, a threshold that may improve further by the time the KTP is scheduled to finish in 2023.

These benefits for Blenheim go beyond a successful implementation of AI, however. The Palace has plans to recruit a finisher who will focus on the System’s Visitor Experience and Flow module, enabling it to be further embedded in their business and to be run independently without any further help from Oxford Brookes. Existing staff will be inevitably upskilled and exposed to new skillsets, and opportunities should later open for recruiting more specialised staff to join them. For Blenheim, thanks to the Associate’s dedicated work and on-campus support from Brookes, a new perspective on business challenges has also been added, one that will doubtless shape their commercial approach going forward.

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**DR PAUL JACKSON**  
Senior Lecturer  
in Information  
Management



## Sports, Direct – A Targeted Advert for Every Fan?

**KTPs don’t always solve existing problems or skills voids in a business or organisation. They can also expand into or open a new line of inquiry, or mode of business. Professor Fabio Cuzzolin’s work on machine learning and AI was recently combined with video advertising on sports pitches to create a technologically-driven, commercially lucrative approach to stadium advertising.**

I’m a Professor of Artificial Intelligence and director of the Visual Artificial Intelligence Laboratory, VAIL (add link to web-site here). Our 3-year KTP is helping transition a company that plays virtual ads on the boards of sports pitches to a new more efficient operating model, using our expertise in computer vision. The company currently uses active boards emitting infrared light, but this is expensive and impractical. We are transitioning them to a TV-based system which broadcasts videos and identifies the areas where the signage is, replacing it with relevant or appropriate content. The ad board on the pitch replaces content with whatever commercial messages you would like to customise for a specific nation or even individual customers.

The company approached Brookes’ KTP Manager, Anna Verghese, who came to me as the most academically relevant candidate for the project based on VAIL’s expertise in computer science. Anna arranged a meeting between the company and myself, and we had further meetings with them to refine the proposal further.

The KTP’s Associate has been looking at the company’s current infrastructure to flag areas for improvement. We are concentrating predominantly on data access. The computer vision requires models to be ready for deployment, but there wasn’t enough data in house, so we’re looking at alternative routes to get the right amount of data. They have lots of

videos, but they’re not annotated in a way that can be used by the right metric. It’s quite an expensive and time-consuming process. We’re also looking at simulation engines as another line of inquiry, and different research avenues to create models that don’t rely so much on data.

From the academic point of view, KTPs require less work than other types of proposals, because the application focuses mostly on the business’s case. They give us the opportunity to work closely with innovative businesses, expand our network of contacts, and see our research translate into actual real-world impact. Last but not least, they can form the basis for strong impact case studies that can raise a department’s profile at the periodic performance reviews.

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**PROFESSOR FABIO CUZZOLIN**  
Professor  
of Artificial  
Intelligence



# Enterprise



## Oxford Brookes Enterprise Centre

**Funded by Oxford Brookes University and backed with investment secured by the Oxfordshire Local Enterprise Partnership (OxLEP), the Enterprise Centre aims to support the creation of more than 15 start-up companies and around 70 jobs. Experts from the Oxford Brookes research community and from resident biotech start-ups are available to help and mentor people using the Enterprise Centre, to give fledgling companies an extra boost.**

Being able to access technical expertise and mentoring has been of great benefit to Coding Bio, one of the centre's start-up companies. The company uses an AI-first approach to design new CARs (Chimeric Antigen Receptors) to revolutionise cell therapy. Starting as a team of two in 2021, they have now expanded to seven people, including a recent Oxford Brookes graduate, Maria-Alexa Cosma, who said: "This is a fantastic opportunity for me to begin my career at the

cutting edge of research. We're literally designing technology for the future. We're using artificial intelligence to design cancer therapies that we can then manufacture in the lab."

**For further information contact Caroline Hamilton, Enterprise Centre Manager ([chamilton@brookes.ac.uk](mailto:chamilton@brookes.ac.uk)) or visit [www.scalebase.co.uk](http://www.scalebase.co.uk)**







## New Opportunities for Academic Entrepreneurship

**Dr Sarah Irons works with the Oxford Brookes Enterprise Centre (OBEC) and uses her links with the Faculty of Health and Life Sciences to bring people and knowledge together to support the development of start-up companies.**

Oxford Brookes Enterprise Centre comprises the Bioinnovation Hub, offering labs and general scientific support, and ScaleBase, offering office and event space. By bringing companies onto campus, we have successfully strengthened relationships between academics and industry figures. We also facilitate student contact with startups, most notably this year by funding internships for three Business & Marketing students, two of whom are going on to join the companies. In each case the collaboration was synergistic; students and academics took new career steps, while the companies gained new insights into marketing and applying their research.

We already have several successful examples of external companies working with us. Samsara Therapeutics rented our labs for roughly 18 months, and secured around \$6 million in follow-on funding. In 2016, Orbit Discovery grew from 2 to 15 people and recently announced £7.2 million of private investment. Other examples include Coding Bio and Oxford Expression Technologies, as well as helping MetaGuideX and Oxford Target Therapeutics receive money and support from ICUR.

At the Centre, we are uniquely positioned to see how startups and spinout companies could be better supported. Academics aren't necessarily trained to deal with administrative and legal 'red tape', which can make

navigating the world of business and investing difficult. Additionally, facilitating links between different university Faculties and Directorates would be incredibly helpful, as they can fall into a pattern of operating independently and alone. More interconnectivity could exploit the immense scope for collaboration across the University.

Externally there is also potential for more effective support. In terms of funding access, expanding already helpful initiatives such as the Innovation to Commercialisation of University Research (ICUR <https://www.icureprogramme.com>) are welcome, to support researchers even earlier on the entrepreneurial journey, or setting up other programmes to fund early-stage research. Fostering academic entrepreneurship is vital to ensure that society benefits from research advances while also contributing to economic growth.

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**To listen to discussions, including those with Emanuela visit: [www.brookes.ac.uk/research/units/obbs/projects/women-and-spinouts/launching-a-spinout-videos](http://www.brookes.ac.uk/research/units/obbs/projects/women-and-spinouts/launching-a-spinout-videos)**



**DR SARAH IRONS**  
Bioinnovation Hub  
Manager

# Developing the Talent Pipeline



## Bridging Research and Business: An Early Career Researcher's Experience

While universities and peer networks can equip academics with insider knowledge of the spinout journey, there is no substitute for early-stage financial support. Emanuela Carollo, a former PhD student at Brookes, currently works for Cambridge Healthcare Research. Here she shares her experience of the ICUR programme, and just what awaits an Early Career Researcher who chooses this path.

The Innovate UK ICUR programme gave me the opportunity to travel to 4 different continents, attend 8 conferences and meet more than 100 like-minded people. We pitched for investment funding and my project was ultimately successful, winning a grant of £210,000!

For a third year PhD student who was then unsure of her future in academia, ICUR was a great opportunity to see life beyond the lab. You may already be a good researcher or scientist, but do you have other skills beyond technical ones? I got to see and challenge myself with other aspects and applications of general scientific work. But beyond that, I also learnt a lot of business skills - to pitch, hold people's attention, and showcase the real-world applications and benefits my research could have. I also structured valuable propositions, to gauge how much people would be willing to pay for the results. And of course, I got to travel the world, which not only broadened my mind but was also a brilliant networking opportunity. In science I never did much of it beyond the odd conference, so learning to overcome 'approach anxiety' and spontaneously engage like-minded strangers was another invaluable skill I honed.

I would repeat this ICUR journey without a second thought, and I can't recommend it highly enough. It was a great experience professionally (I picked up new skills and built valuable contacts) but also personally (it stretched me and really made me grow). The prospect scared me at the outset, but if you embrace the journey, it's worth it. A once in a lifetime experience, truly.

**For more information contact:**  
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**To listen to discussions, including those with Emanuela visit:**

[www.brookes.ac.uk/research/units/obbs/projects/women-and-spinouts/launching-a-spinout-videos](https://www.brookes.ac.uk/research/units/obbs/projects/women-and-spinouts/launching-a-spinout-videos)



**EMANUELA CAROLLO**  
Cambridge Healthcare  
Research



## Doing a Research Degree in the Real World of Business

Many preconceptions surround the experiences of postgraduate students in the UK. Stories of unsupported research, minimal oversight from supervisors, and the inherent loneliness of entirely self-led work, can put off would-be postgrads entirely. But how accurate are these stories? Hannah Tornow, a second year PhD student in Oxford Brookes Business School, partly sponsored by Advanced Oxford, describes her experience of working closely with businesses.

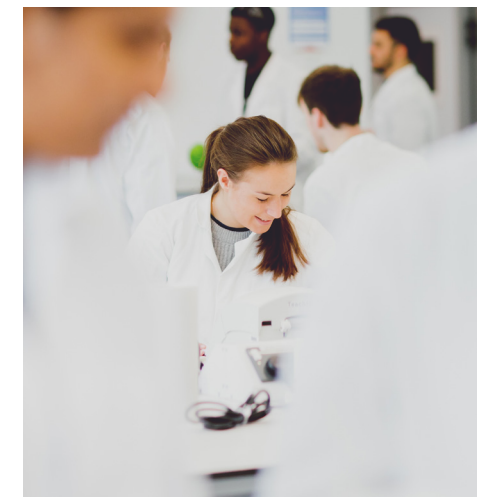
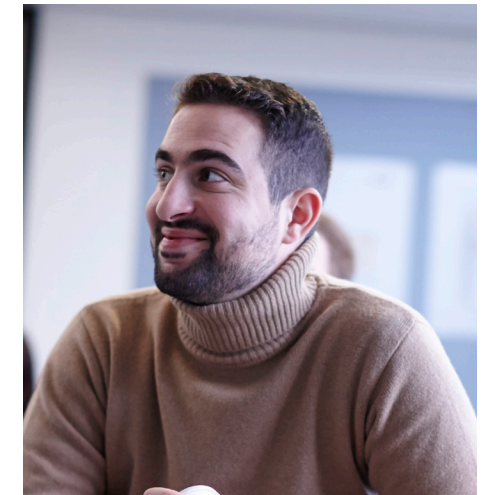
I originally completed my sociology and economics degree in Heidelberg, before doing my Masters in Cologne and then working in consultancy, automotive research and insurance. Now I'm halfway through my PhD at Brookes, in partnership with which is partly sponsored by Advanced Oxford (<https://www.advancedoxford.com>), a group of senior collaborative leaders from the county's major knowledge-intensive businesses, and this which is a unique and exciting opportunity.

I have regular meetings with the managing director, sometimes as often as once a week. I pick up insider knowledge of the innovation ecosystem, and find gateways into companies and events, which facilitates my data collection. The mentoring aspect of Advanced Oxford is also important. I'm not just researching alone in a dark room, but I get to share my findings with other people in the ecosystem, which is helpful and satisfying. I assume that PhDs, with less supervision and opportunities, can be long and lonely affairs, so I don't take this close working and mentoring relationship for granted at all.

I started the PhD mid-pandemic in early 2021. Things now are slowly returning to the status quo, which is fortunate, as I have access to training and workshops to feed my professional development and improve my research. I've also undergone training internally in the Business School, as well as joining external conferences, and recently a workshop on women's coaching. There is so much going on around you and it's up to you to engage with it all – simply put, you'll get out more if you put in more!



**HANNAH TORNOW**  
PhD student in Oxford  
Brookes Business School



'Working with Oxford Brookes (Business School) University has been a really positive experience. Collaborating on the PhD project on gender in innovation has given us access to expertise within the University, as well as capability and capacity to explore this important issue in a way we would have been unable to do on our own. We have built an excellent relationship with Hannah and I think she has really benefited from the real-world experience that Advanced Oxford brings to her research'. Sarah Haywood, Advanced Oxford Managing Director

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**[www.brookes.ac.uk/students/research-degrees-team/](https://www.brookes.ac.uk/students/research-degrees-team/) to find out more about research degrees at Oxford Brookes**



# FUTURE THINKERS



## Can Machines Ever be Moral?

Professor Nigel Crook's new book, *Rise of the Moral Machine: Exploring Virtue Through A Robot's Eyes*, is an authoritative, thoughtful and accessible guide to key ethical questions facing humanity. It combines a deep understanding of the underlying technologies with contributions from psychology, philosophy, neuroscience and Christian theology.

The breath-taking advance of Artificial Intelligence has led to serious ethical concerns over the risks that morally naïve decision-making algorithms could pose to individuals and society at large. AI has no concept of right or wrong, and no capacity to recognise whatever moral consequences there are to its 'autonomous' decisions and actions.

My book describes the emergence of 'moral machines'; the equipping of AI algorithms and robots with the capacity to 'engage' with the ethical consequences of their actions. I bring a deep understanding of AI technology combined with my long-term amateur interest in the theology of personal moral development.

Many authors have explored the idea of moral (or immoral) machines, most notably the American biochemistry professor turned bestselling science fiction author. His fictional robots are governed by the 'Three Laws of Robotics' a moral code that ensured robots would not harm humans, would obey orders, and protect their own existence, in that order; the consequences of which were explored in many of Asimov's short stories. Accordingly, each of my book's four sections begins with a short story about robots that sketches out the concepts that that section addresses.

My aim is to alleviate the fears that surround AI, and to challenge our understanding of human identity, of which moral competence is a vital component. Whatever your ethical convictions – and all of us have them – I hope you find this book rewarding in the questions it addresses to you.

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**PROFESSOR NIGEL  
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