FACULTY OF NATURAL, MATHEMATICAL
& ENGINEERING SCIENCES
DEPARTMENT OF INFORMATICS

KING'S College LONDON

Enterprise & Engagement Report 2023-24

Applying our knowledge and expertise to real-world challenges

Contents

1.0 Context

Enterprise & Engagement (E&E) encompasses a wide range of externally facing activities that can make our research and education more successful and bring about benefits to the wider public. In the Department of Informatics, King's College London, we are mindful of this and focus our research and education efforts on dynamic topics such as Artificial Intelligence, Robotics, Cybersecurity, Digital Healthcare, Quantum Technologies, Green Computing and more – addressing the key economic, societal, and environmental challenges of the 21st century.

To achieve this, we have built a strong ecosystem of external partnerships, helping to bridge the gap between academia and the 'real world' – promoting innovation, creating impact, and spreading knowledge and technology transfer.

E&E activities can take many different forms, and we are constantly striving to offer new opportunities to our partners, such as: bespoke consultancies or executive education that help to address the specific needs of an organisation, short-term undergraduate placements or research collaborations that help with capacity building or proofs-of-concept, or longer-term contract research, research collaborations, or sponsored PhD studentships which can help realise more ambitious goals.

E&E no longer represents a 'good to have' – and under the stewardship of Professor Luc Moreau, Head of Department (2017-2024) and Professor Elena Simperl, Deputy Head of Department for Enterprise and Engagement, we have been committed to embedding E&E within our everyday business.

In this report, we look back at our continued work over the last academic year – and although much has already been achieved, we are excited about the future of E&E within the Department, and plan to grow from strength to strength, becoming a world leader within the field of Computer Science and AI.

1.1 Headlines from 2023–24

King's has **ranked among the top Universities for Knowledge Exchange for the third year running** following the most recent Knowledge Exchange Framework exercise.

The Department welcomed 1,**300 new and returning undergraduate students** and a cohort of **300 new postgraduates** for 2023-24 – including the first cohort of 50 students starting their BSc and MSci Artificial Intelligence programmes, which will deliver much needed graduates with the skills required to be successful AI professionals.

We launched undergraduate **Knowledge Exchange Projects** (KEPs) which are undertaken collaboratively with external stakeholders. In 2023-24 we were excited to partner with organisations such as IBM, QuviQ and Terranova on 15 KEPs, and this number looks to have tripled for 2024-25.

We recruited our first ever '**Professor of Practice**' – Professor Sana Khareghani – who was formerly the Head of the UK Government's Office for AI, and who now forms part of the Responsible AI UK leadership team.

We also hosted the second ever **Research Showcase for Industry**, which now represents an annual, flagship event for the Department, attracting many external attendees to visit us and learn about the potential benefits of a collaboration, co-located with our annual Industry Advisory Board (IAB) meeting which gave us the opportunity to see many of our valued partners.

This is a young, active, energetic Department. We work with industry all the time. We are very much aiming to have a positive impact, not only on the economy and on organisations, but on also the society and the environment. So I would say come and reach out to our Enterprise & Engagement team by contacting informatics-enterprise@kcl.ac.uk – we are here to work with you, to provide feedback on your ideas and to introduce you to the brightest minds in Computer Science and AI of our times.

Professor Elena Simperl
Professor of Computer Science and Deputy Head of Department for Enterprise and Engagement at the Department of Informatics, King's College London

The new BSc and MSci Artificial Intelligence programmes were carefully designed to give students a comprehensive understanding of the extensive and fast-evolving field of AI, placing them at the forefront of the AI revolution. Our curriculum covers a wide range of topics, including Programming, Mathematics, Statistics, and Machine Learning, as well as advanced subjects such as Logic, Robotics, and Natural Language Processing. Students will also gain a strong foundation on Responsible Professional Practice, and the Philosophy and Ethics of AI. As AI increasingly impacts every aspect of human life, fostering expertise in this dynamic area is essential to advancing the UK's technological leadership. At King's, we are committed to developing AI responsibly and ensuring that it aligns with, and upholds, the core values of our society.

Dr Odinaldo Rodrigues
Reader in Artificial Intelligence and Director of Studies for the BSc/MSci in Artificial Intelligence at the Department of Informatics, King's College London


EVENTS
Enterprise &
Engagement Report
2021-23

1.2 Structure of the Department

In the Department of Informatics, we organise ourselves administratively across six Research Groups, which are based on common scientific areas and have been operating now for many years, but to the outside world, our cross-cutting Research Hubs provide a virtual clustering of like-minded researchers that helps to drive new collaborations, not only across the Research Groups but also across King's and with many external partners and collaborators.

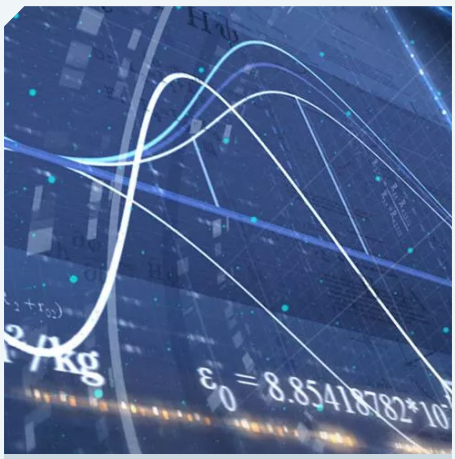
Our research groups

Algorithms & Data Analysis
Algorithmic solutions and concrete implementations, for various applications, across multiple sectors.

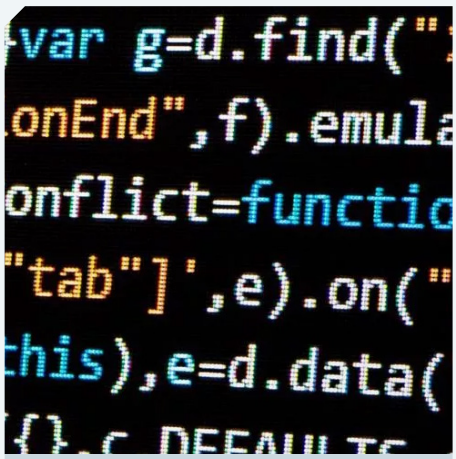
Cybersecurity
Design, modelling, analysis, verification and testing of networks and systems to tackle cybersecurity and privacy problems.

Distributed Artificial Intelligence
Social and technical contexts of decentralised and distributed intelligence, including multi-agent systems, crowd computing, and semantic web.

Human Centred Computing Research
Design, development, and evaluation of systems with which humans interact and engage.



Reasoning & Planning
Symbolic models for reasoning involving argumentation, knowledge representation and planning.



Software Systems
Modelling, design and engineering of software systems, automated reasoning about system properties, and mathematical foundations of modelling computing systems.

Our hubs

Arts and creativity | **Finance** | **Health** | **Security** | **Sustainabilty** | **Trusted Autonomous Systems (TAS)** | **Urban living**

The Research Hubs have been established more recently and they add significant value to the Department due to their highly interdisciplinary nature and the increasingly complex questions were are trying to answer within the field of Computer Science. Indeed, their many successes are already evident, for example:

Dr Mike Cook and **Dr Albert Meroño Peñuela**, Arts and Creativity Hub co-leads, have held several Arts and Creativity Hub 'mixers' – covering high-level topics such as 'Games' and 'Music' – bringing together academics, post-docs and PhD students, alongside leading industry professionals, to share experiences, wants and needs, mutual areas of attention, and potential ways of working together.

Dr Tim Neate, Health Hub co-lead, has organised several Health Hub 'Writing Retreats' where like-minded researchers can discuss their research and collaboratively work on new proposals, and there's an appetite to run more of these, especially for our Early Career Researchers, and to bring along external stakeholders from outside of academia, to provide their valuable technical support and expertise.

Dr Dimitrios Letsios, Sustainability Hub lead, alongside two of his colleagues, Dr Georgia Panagiotidou and Dr Martim Brandão, successfully applied for three of six cross-College Climate Change Seed Funds, meaning that the Sustainability Hub alone was awarded half of the budget for this scheme from across the College, and their work covers many relevant topics, such as exploring the effect of carbon-trackers on Machine Learning teams.

As AI infrastructure has grown in scale, complexity, and resources, its impact on the environment is becoming significant. This project's ambition is to develop user-centred methods to support teams with environmental considerations throughout the AI pipeline. We have just started, but we are already finding that despite the interest from researchers in academia and industry to act in more digitally sustainable ways, there is a lack tools, agency and knowledge to make such decisions. By then engaging stakeholders in co-design sessions this project aims to deliver a bottom-up toolkit that can support teams in their daily decision-making and longer-term planning.

Dr Georgia Panagiotidou
Lecturer in Visualisation at the Department of Informatics, King's College London.

Research Hubs break down traditional barriers, fostering the cross-disciplinary collaboration that drives both academic excellence and real-world impact. As Finance Hub lead, I've seen first-hand how this structure creates unique opportunities to build networks within King's and beyond and develop world-leading research.

Professor Carmine Ventre
Professor of Computer Science and Interim Head of the Department at the Department of Informatics, King's College London.

2.0 Working in partnership

Partnerships are fundamental to our E&E work, and only through the sharing of knowledge, concepts, expertise, and solutions, we will ensure that our research and education efforts deliver the greatest benefits to our students, staff, and of course the wider world.

The Industry Advisory Board

The Department of Informatics Industry Advisory Board (IAB) acts as a focal point for all our partnership efforts, and is currently led by Professor Hana Chockler, our Partnerships Lead, who benefits from 8 years of research experience at IBM, and who has also been a co-inventor on more than 10 patents.

The IAB consists of over 20 external partners, such as IBM, NatWest, and Unilever, who support the Department in a non-executive capacity. IAB members are appointed for a three-year term to start, and the board convenes face to face on an annual basis at our Bush House premises. In addition to this, during 2023-24 we ran several virtual workshops to help engage members and promote collaboration, as well as circulating a termly newsletter to IAB members to keep them up to date on our research and education activities.

The IAB offers many opportunities to members, such as being able to network with other representatives from industry, access to academic partners for collaborative funding calls, and academic experts more generally, as well as access to a large student population at a top Russell Group university.

The terms of reference for the IAB are to:

- Advise on the relevance of our undergraduate and postgraduate programmes.
- Review our research for potential industry links, and to facilitate this by providing Letters of Support as well as cash and in-kind contributions.
- Feed the Department strategy by providing guidance on long-term developments and sector trends.
- Identify opportunities for the commercialisation of our research.

Our partnerships in numbers

330+

unique **industry collaborations**

480+

industry collaborations

£14.5m+

worth of contributions from **industry collaborators**

£4m+

budget awarded by **industry funders**

180+

letters of Support given by **industry collaborators**

Informatics Research Showcase

The second ever Research Showcase for Industry took place on the 10 June 2024, and now represents an annual, flagship event for the Department. It was centred around poster presentations and demonstrations from across the Department, with representation from undergraduate and postgraduate students, post-docs, and academics. It attracted many external attendees from organisations such as Ocado Technology, ScienceCard, Trainline and many more. It was a great success, and we have now launched a short video to highlight the event, and have also dedicated a specific section on the Informatics website to this, to highlight our achievements.

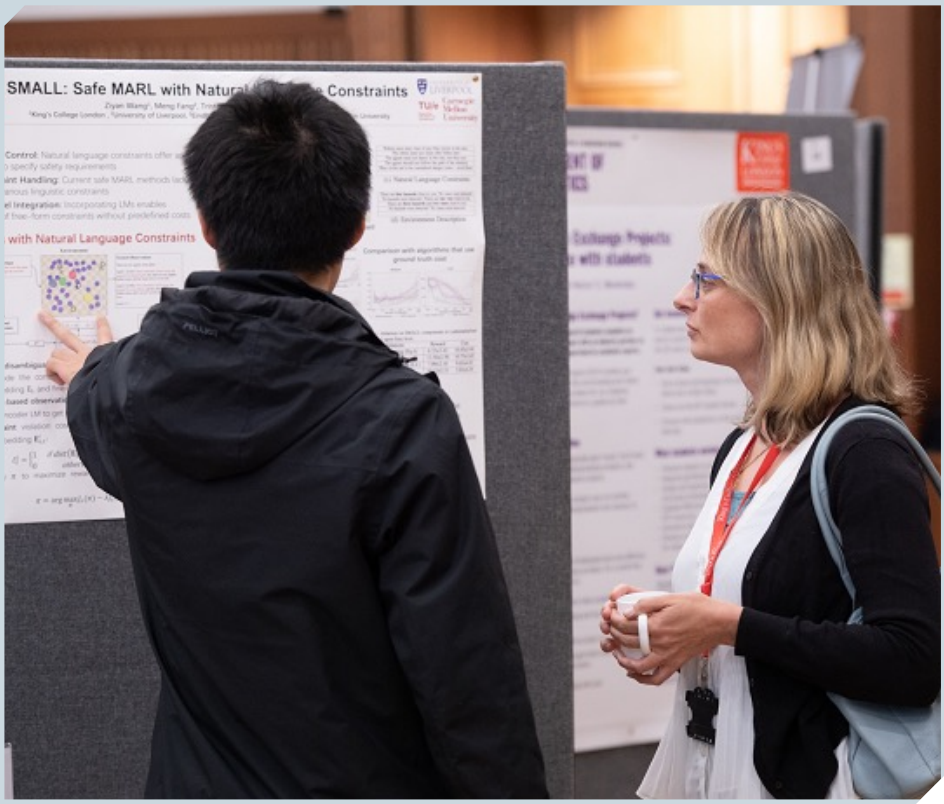
Visit kcl.ac.uk/informatics-research-showcase-1

Some examples of the posters and demonstrations on the day are as follows:

- AI design assistants for games, virtual worlds and digital art
- Wearable robotics devices for patients with upper-limb motor disorders
- Autonomous service robots for your home
- Strategic bidding wars in blockchain auctions
- Re-engineering software to be sustainable.

It's amazing to see the showcase growing from strength to strength every year, with more and varied posters, demos and talks from across the Department, including staff and students. The showcase reflects our commitment to understanding and improving the world through technology.

Professor Elena Simperl



Current IAB membership

- **Madeline Bailey** Norton Rose Fulbright
- **Chris Bailey** IBM
- **Niall Creech** William Hill
- **Lorenzo Grillo** Industry co-chair Alvarez & Marsal
- **Jia-Yan Gu** NatWest
- **Liucheng Guo** TG0
- **Karl Hoods** Department for Energy Security & Net Zero
- **Janette Jones** Unilever
- **Leslie Kanthan** DataSpartan
- **Jason Maude** Starling Bank
- **Jon McLoone** Wolfram
- **Natalie Pankova** Zinc VC
- **Tim Stone** Nuclear Risk Insurers
- **Lynn McConnell**
- **Oana Tifrea-Marciuska** Bloomberg
- **Yue Wang** Samsung
- **Sonja Zillner** Siemens
- **Raouf Yousfi** Terra
- **Phillippa Chick** Intel
- **Fergus E Kidd** Avanade
- **Andrew Krentz** Metadvice
- **Burim Bivolaku** Intercontinental Exchange
- **Simon Miles** Aerogility
- **Nikolaos Siafakas** Theory and Practice of Software Ltd
- **Ernest Omane-Kodie** London Stock Exchange Group
- **Nitin Dhall** Sahaj

2.1 Embedding engagement in education

As highlighted throughout this report, the partnerships we forge provide valuable contributions to our education efforts, while also strongly benefitting the experiences and employability of our students.

2.1.1 Knowledge Exchange Projects (KEPs):

Knowledge Exchange Projects (KEPs) allow our undergraduate and postgraduate (taught) students to apply the skills and knowledge gained during their degree to real world contexts, collaborating with external partners such as businesses, charities, public sector organisations, and academics from other disciplines within King's.

KEPs allow these partners to fast-track their innovation by collaborating with students and staff at low cost and with low risk, while helping them to build relationships with the best and brightest students before they graduate, and to connect with researchers and educators who are world-class experts within their fields.

KEPs begin with a 'Project Proposal' from a partner wishing to collaborate with us, submitted using an MS Form from our website. We collect KEP proposals year-round, however you will need to submit by specific deadlines to participate during the forthcoming academic year – see our website for more details on this – kcl.ac.uk/informatics/engagement/knowledge-exchange-projects

When we receive your submission, we'll contact you to discuss your proposal further, and then onboard you to the next cycle of KEPs, matching you up with students and academics whose skills and expertise align with yours.

Dr Héctor Menéndez (our KEP coordinator) has led several workshops over the last 12 months, helping to promote KEPs among students, staff and external partners – and we have seen a great deal of enthusiasm from all parties, who clearly see the value of this short-term collaboration. It has led to a huge uptake, and we are pleased that as a response to this, we are now able to offer a much higher number of KEPs for the upcoming 2024-25 academic year.

> *Engaging in meetings with fellow students and the tutor has been truly inspiring and incredibly beneficial. It provides a valuable opportunity to exchange knowledge and create a positive impact on everyone involved.*
>
> **Lucio Machetti**
> R&D Manager at Terranova.

Spotlight on Ali Alkhars

BSc, Computer Science (2021-24)

Ali Alkhars was among the first cohort of students to undertake a KEP, working with the support of Dr Héctor Menéndez from KCL and John McNamara from IBM on a short-term research collaboration with several key deliverables:

1. Creating a simple and efficient approach to fine-tune small language models, with relatively low resource requirements, using the Hugging Face Trainer API.
2. Creating CareerBud, a chatbot trained using this approach, which helps users to boost their career prospects, by providing them with real-time recruitment opportunities, recommending IBM SkillsBuild courses, and suggesting CV revisions.

Ali was able to show that fine-tuning small language models for specialised tasks, such as helping users with their career development, could achieve state-of-the-art results. It builds on the assumption that smaller models are easier and much more efficient to train for specialised tasks such as this, compared to large language models like ChatGPT and Gemini, which have broader knowledge than necessary. The CareerBud models and datasets are publicly shared on Hugging Face, and the corresponding GitHub repository has been made available. In doing so, Ali aims to make language model training more accessible, and to promote further research and development within this area of generative AI.

2.1.2 King's x AWS Impact Accelerator

Informatics students worked with Amazon Web Services (AWS) to showcase their digital solutions to some of London's most pressing problems. As part of the King's x AWS Impact Accelerator programme, the students worked with AWS to apply the skills learnt during their studies to some of the challenges faced by public sector bodies, such as councils, helping them enhance their resident services.

Informatics students had access to workshops and seminars delivered by AWS experts, spent seven months with their 'Challenge Sponsors' to help them understand the needs of the organisation, and had ongoing support from AWS, who helped the students to deliver meaningful change through their work, which was showcased at a demo day at Amazon HQ.

'Team Lovelace', the winning team at this event, worked with children's services provider Achieving for Children to design 'SchoolSeeker', a digital map that displays data for schools in Kingston, Richmond, and Windsor & Maidenhead, to help parents make informed decisions about which schools to send their children to, based on factors such as faith and postcode. The programme ran machine learning models trained on anonymised data from Achieving for Children, and then leveraged this to accurately predict the likelihood of a child's acceptance to a specific school.

> *As someone who is currently looking at school places for their children, it feels like homework. A system that gets you 80% of the way there could be massive. The next step is commercialisation, and collaborating with an organisation like AWS will be invaluable to supporting this. I could absolutely see something like this integrated into some of the popular real estate applications..*
>
> **Matthew Wallbridge**
> Chief Digital and Information Officer at Hillingdon Council.

AWS and King's will now support some of these students to develop start-ups, and the Department will continue to run this Accelerator programme, contributing to a longer-term vision of student-led and socially conscious industry engagement.

> *Our students bring a first-class education and first-class mindset to the problems they solve. By working with AWS and local government, this programme empowers them, turning the research done in the classroom into real innovation for real people.*
>
> *Encouraged by the tremendous success of the format, we are seeking to partner with a technology company to launch an Impact Accelerator for our AI degree.*
>
> **Professor Elena Simperl**

2.1.3 Year in industry

The Department also supports a growing number of undergraduate students to undertake formal Year-in-Industry (YII) opportunities. YII can help students to explore potential career paths and provide them with valuable work experience, whilst developing transferable skills for the future, significantly boosting their employability once they graduate. It also benefits partner organisations, who not only play a part developing the next generation of talent, but who can build their reputation among students before they enter the graduate market, developing a strong recruitment pipeline which can bring a fresh, new perspective to their organisation.

In 2023-24, the Department had 31 undergraduates completing a Year-in-Industry – working with world-leaders such as the Bank of America, Jaguar Land Rover, PwC and UBS.

I believe that the programme has given me an advantage in terms of the work experience on my resume. The placement programme at King's College London is just an amazing opportunity.

Vandad Vafai
BS Computer Science with Management and YII (2020-24).

2.2 Partnerships and collaborations

The Department has ambitious plans for Enterprise and Engagement going forward, but we acknowledge that by no means can we achieve this on our own, and that building on existing partnerships and collaborations, and forging new ones, we will be fundamental to our future success. It's therefore worth taking a look at some examples of these partnerships and collaborations from the past 12 months.

New grants

- Professor Yulan He has been awarded a £200,000 grant called 'Elandi', funded by Innovate UK, and collaborating with AI for Global Goals Ltd, Bynd Ltd and Mozilla, to build trustworthy generative AI which can be used for affordable personalised learning and development.
- Professor Luca Vigano has been awarded an Innovate UK Knowledge Transfer Partnership with Controlplane, worth more than £300,000 – which they will use to develop an automated tool for the security of the Kubernetes platform, on which critical Cloud Infrastructure relies.
- Professor Elena Simperl and Professor Liz Black have been awarded more than £500,000 as Co-Investigators on a grant led by the University of Edinburgh, called 'Participatory Harm Auditing Workbenches and Methodologies'. It will look to develop new methods for maximising the potential benefits of predictive and generative AI, while also minimising their potential for harm.
- Professor Mohammad Mousavi has been awarded almost £100,000 as a Co-Investigator on an Innovate UK grant led by the BT Group, called 'QAssure', developing new methodologies that will allow Quantum Technology systems to be deployed safely.
- Dr Yijing Li has been awarded a £30,000 grant by the Mayor's Office for Policing and Crime (MOPAC), which will attempt to model and understand disproportionality within Stop and Search usage across London.
- Professor Hana Chockler has also been award over £1.7M as a Co-Investigator on an EPSRC AI Hub led by the University of Edinburgh, called 'Causality In Healthcare AI With Real Data' (CHAI). It will explore how AI can be used to benefit healthcare outcomes for patients.

Healthcare systems are dealing with resource constraints on a massive scale, and current AI efforts are not pushing the envelope fast enough. A robust, safe and trusted AI system that can tackle early prediction, diagnosis and disease prevention could transform medicine, and that's what we aim to do with CHAI Hub.

Professor Hana Chockler
Professor of Computer Science at the Department of Informatics, King's College London

New partnerships and collaborations

- The Department has become a member of the Big Data Value Association (BDVA) – a community of European organisations working on Data Management and Analytics.
- Professor Elena Simperl has been announced as a member of OpenUK's first AI Advisory Board, providing high-level expertise and guidance on policy matters across the domain.
- Dr Yali Du has been appointed as a member of the Parliamentary Office of Science and Technology (POST) board for Artificial Intelligence which helps to define how AI can be used, how AI works, and which discusses concerns and perceptions surrounding AI.
- Dr Yijing Li has been appointed as an academic advisor for Safest Way, a mobile app which looks to revolutionize personal safety by using data from CCTV cameras, streetlights, and crime statistics to map out the safest walking routes for users.

> *The collaboration among students, academics, and industry professionals was made obvious in the quality and detail of the presentations. I highly recommend it to anyone interested in a compelling demonstration of how data can shape the future of our cities.*
>
> **Sandor Petroczi**
> Director at AccuCities

2.2.1 CUSP London

The Centre for Urban Science and Progress (CUSP) London is a collaboration between King's College London and New York University, hosted within the Department of Informatics. It's a multi-disciplinary research centre that brings together researchers, businesses and government agencies to apply data science and visual analytics to the challenges we face within urban spaces, related to crucial topics such as the future of our health, clean energy and economic growth.

Engagement with external partners and collaborators has always been central to CUSP London activities, and provides real-world context for their research, supports placements, leads to employment opportunities for students, while also delivering value to these partners and collaborators by giving them access to top talent, as well as the latest digital skills.

In 2023-24, CUSP London successfully co-ordinated, hosted and presented at a record number of events, with 54 of them taking place.

CUSP London hosted another successful Data Dive this year, on Air Quality, Transport & Health – and participants included undergraduates, postgraduates and PhD students from six universities, across three continents and four time zones, with many representatives from outside of academia, such as AccuCities, Westminster City Council, Transport for London (TfL), the Department of Transport, as well as several CUSP London alumni.

TfL helped to lead this Data Dive, providing the data and delivering the opening talk, with other partners and collaborators giving short seminars to provide context and real-life examples of data use. It was followed by group work which allowed participants to share best practice, across the course of four days.

AccuCities are a significant partner with CUSP London and have even highlighted their partnership and collaboration with CUSP London on their website – accucities.com/visualising-city-data-in-3d-by-cusp-london/. CUSP London are subscribers to the AccuCities 3D Model of London, and this subscription allows us to exploit and visualise 3D data of the city – leading to many exciting opportunities, for example:

CUSP London have used this model, alongside air quality data, to help visualise air pollution across the city and to make this much more understandable, allowing users to explore the locations of data sensors and the subsequent air quality measurements, within a familiar 3D context, while also making use of bivariate vizent glyphs, which use colour and shapes to present the results, rather than more traditional, less user-friendly statistics.

2.2.2 UKRI Centre for Doctoral Training (CDT) in Safe and Trusted Artificial Intelligence (STAI)

The UKRI Centre for Doctoral Training (CDT) in Safe and Trusted Artificial Intelligence (STAI) is training the next generation professionals within this field, offering a unique four-year PhD programme which focuses on the use of symbolic AI techniques for ensuring the safety and trustworthiness of AI systems.

External partnerships and collaborations are fundamental to the STAI CDT's work, achieving this through student sponsorship, training and development activities, student placement opportunities, and cohort-building activities.

Examples of the CDT's many successes are as follows:

- The CDT held their own Research Showcase during 2024, and had 22 external attendees, with representatives from Ofcom, Thales UK, Ocado Technology, IBM Research, the National Archives, and the Department of Science, Innovation and Technology.
- Two STAI CDT PhD students were accepted to the prestigious Alan Turing Enrichment scheme for 2023-24: Anna Gausen and Madeleine Waller. It gives UK-based PhD students the opportunity to undertake a placement at the Alan Turing Institute in London, to learn from and collaborate with a diverse community of researchers and gain new research skills that will benefit both their PhDs and future careers. Three more CDT students have been accepted to the scheme for 2024-25: Andrei-Bogdan Balcau, Chiara Di Bonaventura, and Elfia Bezou-Vrakatseli.
- It's looking bright for the CDT, and for 2024-25 they will have a cohort of 18 CDT-aligned students.

3.0 Public engagement

In the Department we have a mission to provide young people, their supporters, and our local communities with high-quality STEM engagement and outreach opportunities. Computer Science, and particularly AI, have become hot topics over recent years, especially with the growth of generative AI tools such as ChatGPT. It's therefore vital, now more than ever, that we do everything we can to encourage Computer Science literacy among the widest possible audience, while also encouraging the next generation of students to continue studying STEM, so that we have the skills needed to keep building on our recent successes within this growing field.

3.1 Outreach

The King's AI Festival took place again this year, and was bigger and better than ever before, with events such as public lectures, panel discussions, film screenings, demos and workshops, all showcasing the latest advances within the field of AI and their effect on society at large.

- Mark Hilton, Membership Director at BusinessLDN, chaired a panel discussion which explored the potential for London to become a global leader within AI, with speakers such as Theo Blackwell MBE, Chief Digital Officer at the Greater London Authority.
- There was a sold-out 'Family Zone' held on the weekend, offering a free, family-friendly exploration of AI, with activities suitable for children aged four and above, such as 'Maths on the Move' – looking at how AI can be used to develop autonomous vehicles, and the ethical concerns around this.
- In all, this event reached more than 1,500 people across the five days, more than half of which were members of the public and not affiliated with King's!

Dr Mike Cook, Senior Lecturer in Computer Science, spoke at New Scientist Live during October 2023, alongside Amy Smith, his PhD Student. Mike and Amy gave an overview generative AI to a packed crowd, covering the history of AI from 'Turing to Transformers', and then, with the help of the audience, generated a new tarot card live on stage using ChatGPT and Midjourney (a generative 'Text To Image' AI programme) which was used to conduct a fortune-telling reading about the future of AI and humanity.

As part of our STEM Lectures for Schools series, Professor Luca Viganò also gave a talk to over 40 students from local schools, using fairy tales to illustrate the key concepts of cybersecurity and AI. In his talk, Luca showed how the story of Cinderella is actually about two factor authentication, how the tale of Ali Baba and the 40 thieves provides important lessons on eavesdropping, and that the adventures of Pinocchio are really an exploration of the ethics of AI. In doing so, Luca showed these students how using art and stories can help people to better under these complex but crucial topics, and hopefully helped to motivate the next generation to continue studying STEM.

3.2 Computerphile

Computerphile, the popular YouTube channel that posts videos about Computer Science, visited the Department again this academic year, with three new videos being uploaded, reaching almost 400,000 views between them! Steffen Zschaler discussed Digital Twins, Laurie Tratt spoke about Coding & Web Servers, and Mohammad Abdulaziz talked about Mechanising (Graphical) Mathematical Proofs.

To view any of this content, visit youtube.com/@Computerphile

3.3 Informatics in the news

Informatics researchers are regularly asked to contribute their knowledge and expertise to topical news pieces, reaching a far wider audience than the typical peer reviewed publications or conference proceedings for which they are more often known.

In 2023-24 alone, the Department made over 130 such contributions.

For example:

- In The Engineer UK, **Dr Letizia Gionfrida** highlighted why computer vision, when used alongside wearable robotics, could soon help more than one billion people globally who are living with disabilities, through the development of the next generation of assistive technologies.
- **Dr Ruba Abu-Salma** wrote for the *Financial Times* and was on the BBC Woman's Hour, highlighting how women are being put at risk due to the poor data handling practices of popular female health apps, such as period trackers.
- **Dr Mike Cook** wrote a piece for *The Conversation* which examined how the New York Times' lawsuit against OpenAI could change the legal system, highlighting the need for new laws to protect us against the fast-paced technological developments of this decade.
- **Dr Jie Zhang** also appeared in the *New Scientist*, speaking about her paper on the fairness of Autonomous Vehicles, which shows that driverless cars can struggle to spot children and dark-skinned people, raising concerns around the accuracy of pedestrian-detecting AI systems and fuelling calls for tighter regulations.


KING'S College LONDON
STEM

4.0 Training and support

The Department supports and upskills researchers through tailored training and development opportunities, such as: regular workshops on Impact for Computing Academics, E&E clinics and webinars, specialist funding calls to pump-prime research and education endeavours, and regular, specialised talks on topics such as IP and licensing, commercialisation, and more.

4.1 Encouraging Enterprise & Engagement Webinar Series

These bitesize sessions allow researchers to upskill or explore specific key E&E activities, as well as providing an opportunity to network with like-minded colleagues on the E&E opportunities available.

Recent webinars and courses include:

- Outreach with Schools and Young People
- Boosting the Public Profile of your Research
- Knowledge Transfer Partnerships (KTPs): Making Knowledge Exchange work for Academia and Business
- Pitching Training Session: Communicating & Presenting with Impact
- Intro to Commercialisation: a guide to IP, Licensing and Spinning Out

4.2 Training on impact for computing academics

This bespoke workshop was first delivered during January 2022 and remains a probation requirement for all new academics, while also being open to post-doctoral researchers and PhD students, emphasising our commitment to E&E. It's led by an external facilitator, with contributions from several members of the Department with a strong E&E track record. It has been run at least twice a year since January 2022, ensuring that all new staff can access this knowledge and expertise within the first 12 months of their employment.

4.3 Travelling Science Fund and Partnerships Fund

The 'Travelling Science Fund' was launched during 2023-24 for staff who wished to demonstrate or share their research with a non-academic audience outside of King's, to help encourage public engagement.

The Department received one of these for Dr Josh Murphy and Dr David Marzagão, enabling them to work with partners from the University of São Paulo, and their math museum, Matemateca, to create Interactive Objects that were later exhibited at the Oxford maths festival.

The 'Enterprise & Engagement Partnerships Fund' was also launched this year, and provided the means to expand the reach and significance of our research through engagement with external partners and collaborators. The Department received three of these:

- **Dr Jie Zhang** received £4,000 for an 'AI-powered Software' workshop which attracted speakers from Meta AI, GitHub and Stanford, with well over 150 attendees.
- **Professor Elena Simperl** received £5,095 for a piece of work on 'Evaluating the Wikidata Ontology' – which led to an open-source tool available to more than 23,000 Wikidata volunteers.
- **Dr Christine Aicardi** received £5,295 to collaborate with science fiction author Stephen Oram, who helped her to run a Digital Twin Creative Writing Challenge competition for young people, partnering with the City of London School and three of their academies.

4.4 EPSRC Impact Acceleration Account (IAA)

Impact Acceleration Accounts (IAA's) are short-term pieces of research which help us to quickly and efficiently transfer the findings and technologies from previous grants to the wider world, by facilitating prototype development, skills enhancement and training activities, placements, and knowledge exchange – all of which strengthen links with businesses, policy makers and end users.

In the Department of Informatics, we have had significant success with IAA's over the last several years, with 6 of these being awarded to the Department during 2023-24, worth almost £180,000.

- Affordable Myoelectric Hand Prosthetic to Improve the Users Experience (Dr Nicola Bailey and Dr Letizia Gionfrida)
- Developing an Interactive and Transparent Science Exam Scoring System (Professor Yulan He)
- Wikidata Quality Toolkit: Assuring the World's Data Commons (Professor Elena Simperl)
- Open-Source Release of 'Hardware Tracing' Software (Professor Laurie Tratt)
- SOOTH-ED: Purrble's Soothing Touch for Eating Disorders and Autism (Dr Petr Slovak)

In collaboration with Dr Nicola Bailey, Senior Lecturer in Engineering, we are working hard to secure the design of a myoelectric hand prosthetic for people with an upper limb difference. Using the IAA funds, we expect this to lead to several high-profile publications, as well as significant external partnerships. For example, we will have a visit from a leading UK prosthesis company, Open Bionics, to discuss a potential collaboration, while parallel testing has been on-going with the FLOAT Foundation.

Dr Letizia Gionfrida
Lecturer in Computer Vision at the Department of Informatics,
King's College London

4.5 Consultancy and Executive Education

The Department allows academics to undertake bespoke consultancy and executive education opportunities to support key external partners. These highly specialised and tailored activities allow academics to leverage their research and education expertise for the specific commercial and developmental benefit of the partners and collaborators we work with. In the last 12 months, there have been many examples of this, as follows:

- **Dr Helen Yannakoudakis** has worked with PeopleCert, a global leader within the exam and certification management sector, on the development of unique AI solutions for education that are robust, versatile and applicable to the real-world.
- **Dr Grigorios Loukides** has worked with FITFILE, a technology company whose products help to unite health data across silos to deliver safer, faster and better data. FITFILE recently developed a new anonymisation protocol, and Grigorios' role was two-fold: first, to develop, validate and test an anonymisation tool based on the findings of a recent paper of his, and second, to optimise the anonymisation protocol. FITFILE and Grigorios plan to extend the tool to be able to work with different types of data and anonymisation requirements.
- **Professor Yulan He** also served as a consultant for the London Stock Exchange Group (LSEG), providing guidance on risk assessment and validation frameworks for Large Language Models.

5.0 The E&E Team

The E&E support for the Department of Informatics for 2023-24 was provided by:

- **Elena Simperl**, Professor of Computer Science and Deputy Head of Department for E&E
- **Hana Chockler**, Professor in Computer Science and Partnerships Lead
- **Hector Menendez**, Lecturer in Computer Science and KEP coordinator
- **Rameez Subhan**, Research Support Manager
- **Tors MacIver**, Student Industry Projects Officer

In addition to this, E&E support at the Faculty level continues to grow, providing cross-cutting support across the various Departments of the Natural, Mathematical, and Engineering Sciences (NMES) Faculty.

It will enable us to meet our long-term goals, which are to:

- promote and embed an effective culture of E&E within the Faculty and nurture an environment that supports this
- increase the impact of our research and teaching
- support the next generation of leaders, researchers and entrepreneurs
- enhance our enterprise and our national and international profile by engaging with industry, government, policymakers, and international academic partners
- offer our expertise and skills to the public, and collaborate with local communities; boost our reputation amongst funders, academic and industry partners, governments, staff, and potential future students through effective communication of NMES's world-leading research and teaching.

Meet some of the team

Professor Elena Simperl
Professor of Computer Science and Deputy Head of Department for Enterprise and Engagement at the Department of Informatics, King's College London

I have been at King's since 2020, and have spent over twenty years at the forefront of AI and social computing research, helping to build advanced sociotechnical systems that combine data and algorithms with human and social capabilities.

I recently ventured outside of academia to work part time for the Open Data Institute as their Director of Research. It's a humbling experience to see research translate to new and promising applications, which could have a big effect on practices, standards, and public policy.

I bring these experiences with me to my role as the deputy Head of Department for Enterprise & Engagement at the Department of Informatics, where I am responsible for devising and overseeing the Departmental E&E strategy. It means coordinating and planning E&E activities across the Department, managing strategic partnerships with non-academic stakeholders, and ensuring that the Department maintains a strong culture of both impact and innovation. We now have a Departmental E&E Committee, regular training on research impact, as well as Knowledge Exchange Projects for Year 3, 4 and MSc students, and our annual showcase. We have also set up the AWS Impact Accelerator, an open-innovation scheme to address tech for good challenges with the help and expertise of our students, as well.

The Department has therefore made significant progress within this area, with strong partnerships with public, private and third sector organisations. I believe we are well-placed to grow these partnerships and build new ones over the coming years, particularly with the development of our new BSc and MSci Artificial Intelligence programmes.

Looking into the future, I'm committed to grow our entrepreneurial activities for students and staff, building on these partnerships to forge new pathways to impact for the brilliant ideas I see across the Department every day.

Dr Sarah Werts
Head of Enterprise & Engagement at the Faculty of Natural, Mathematical & Engineering Sciences, King's College London

As the Head of Enterprise & Engagement (E&E) for the Faculty of Natural, Mathematical and Engineering Science, I lead the E&E function, which provides support for all types of internal and external engagement.

Our function raises NMES's profile, increases the impact of our research and teaching on the outside world, and brings reputational, financial, staff and student benefits. We do this through:

- **Enterprise and engagement** – growing, enabling, and delivering a range of enterprise and engagement collaborations in partnership with academics, businesses, public sector and charities.
- **Institutes and centres** – bringing together general management and support for our interdisciplinary Centres and Institutes: Net Zero Centre, Physical Sciences of Life, Centre for Urban Science and Progress (CUSP) London, and the AI Institute.
- **Communications and events** – promoting NMES research and education to increase engagement through new media and PR stories, social media, events, videos and digital content, managing web pages, and supporting comms within the Faculty.
- **Outreach** – developing and delivering outreach activities to build STEM awareness and excitement amongst young learners.

I really enjoy having such a varied and fast-paced role, and working with such an enthusiastic, knowledgeable and professional team. We've grown a lot and it's a pleasure to see the results of this investment – the growth of our digital presence and media coverage, students attending our courses as they were inspired by an outreach event they attended, and the development of a wide range of collaborations which are delivering practical and usable solutions to real world problems.

6.0 Looking ahead

Since our foundation, almost 200 years ago, King's has been deeply committed to serving the needs of society – and to this day we are committing to using our expertise as a force for good. King's has a long tradition of active engagement with the wider world, helping to solve the most challenging problems of our times.

King's has committed to:

- bringing together our assets and expertise and working collectively to respond to the most pressing global issues
- deploying our knowledge in service to society and engaging the communities we serve in London, the UK and globally through equitable partnerships
- investing in education and research for a just transition to Net Zero
- building sustainability into all our actions
- adopting integrated approaches that unite research, education, service and engagement to increase our impact and facilitate cooperation
- implementing a whole-university approach to delivering and measuring impact.

Enterprise & Engagement dovetails with all of this, and within the Department of Informatics, we have embedded E&E across all of our research, education and operations activities, building partnerships and collaborations on a local, national and global scale, to benefit the widest possible audience – whether that be through bespoke consultancies or executive education, short-term undergraduate placements or research collaborations, longer-term contract research, research collaborations, or through sponsored PhD studentships, and much more.

7.0 Get involved

The Department of Informatics actively promotes Enterprise & Engagement activities, and to benefit from any of this, please do contact us:

Now is the time for you to get involved.

Join our Industry Advisory Board (IAB)
kcl.ac.uk/informatics/engagement/industry-advisory-board

Collaborate on a Knowledge Exchange Project (KEP)
kcl.ac.uk/informatics/engagement/knowledge-exchange-projects

Enquire about co-sponsoring a PhD
informatics-enterprise@kcl.ac.uk

Partner with us on an AI Impact Accelerator for our new BSc and MSci Artificial Intelligence programmes
informatics-enterprise@kcl.ac.uk

Partner with us on a grant application
informatics-enterprise@kcl.ac.uk

Enquire about the Year-in-Industry programme
kcl.ac.uk/nmes/study-with-us/placements

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