APPOINTMENT OF THE

DIRECTOR OF THE INSTITUTE
FOR
SAFE AUTONOMY (ISA)
The Ron Cooke Hub is a £20 million, 7000 sq ft 'melting pot' for engagement. Bringing people together across disciplines and sectors, from within and outside the university, providing space for new ideas and partnerships to blossom.
The York Robotics Laboratory, a joint venture between the Departments of Computer Science and Electronic Engineering, brings together a wide range of science and engineering expertise for teaching and research.
The University of York is a world-leading institution and a member of the prestigious Russell Group, bringing excellent research and teaching together with collaborative innovation. We pride ourselves on our sense of community and whilst we have grown in size, we have retained the legacy of a connected, cohesive and purposeful community working together to make a real difference in the world. Our vision of a university for public good is grounded in our founding principles.

As part of a multi-million pound strategic investment in the Institute for Safe Autonomy (ISA), supported by UK government, industry and philanthropic partners, the University of York is seeking to appoint an outstanding leader to become Director of the Institute.

To realise all the potential social and economic benefits of the Institute’s mission, strong partnerships must be formed with business, regional government, regulators and within the University and Institute itself. This role offers the opportunity for an individual to establish those partnerships and to guide future objectives for a collective research base with tremendous potential for growth and global impact.

The Director will lead the development and growth of the Institute providing direction and leadership in the delivery of a five-year business strategy that secures sustainability. The Director will champion the component disciplines of robotics, autonomous systems, safety engineering, advanced communications and quantum technologies building productive partnerships with industry, regulators, regional government and academia. Internally the Director will build a collaborative culture of research innovation within the Institute by drawing upon wider University resources and support to address challenges and access new opportunities.

This position offers the opportunity to define an inspiring vision for the future of the Institute, building on York’s strengths and successes to date, whilst creating a roadmap for the future.

We particularly welcome interest and applications from female candidates, and candidates from minority ethnic backgrounds, who are underrepresented at a senior level in the institution.

Thank you for your interest in this opportunity.
Throughout history, there have been step change moments in industrial development when a combination of the right resources, a capacity of innovation and ingenuity combine and lead to developments that transform the lives of people across the globe.

Robotics and autonomous systems have the potential to fundamentally change the way we live, how we travel to work, how we are looked after in later life, and how our food is produced and moves from farm to fork. To achieve the highest levels of autonomy and greatest benefits additionally requires effective and secure communications – in other words robotics and connected autonomous systems (RCAS).

The Institute for Safe Autonomy will advance RCAS capability, integrating work in system design and verification, multimodal communication, quantum technology, and assurance of safety and security, to ensure that society can realise the full benefits of RCAS. It will address multiple environments including air, the home, land, space and water (both on the surface and below), and application domains as diverse as agriculture, earth observation, health and social care, road transport; it will also consider remote control and monitoring of RCAS. The initiative will provide world-class capabilities for system testing and evaluation, and will lead activities in research, education and training, innovation, ethics and public engagement in RCAS.

RCAS technology underpins our future prosperity, developments in Artificial Intelligence and Robotics are in particular identified within the UK’s Industrial Strategy as one of four Grand Challenges where the UK must act now to put itself at the forefront of the industries that will shape our futures and have a transformative impact on society. The institute for Safe Autonomy is tasked with ensuring that this impact is safe, the institute Director is tasked with ensuring that the Institute is embedded at the forefront of development through engagement with industry, government and the broader academic community. There is a strong collaborative ethos within the University, identifying and making the most of these synergies will be crucial for success.
PURPOSE

York is a world-class, international University committed to research excellence and teaching through working together with talented staff, students and partners. We work with leading academic institutions and employers locally, across the North of England, nationally and internationally. The Director of the Institute for Safe Autonomy will be tasked with embedding partnerships with local and global companies to help drive our research and collaborations.

The Institute for Safe Autonomy is of strategic importance to the University of York, viewed as a cornerstone of the University’s ambitions to grow impactful research that addresses societal challenges for the public good. The Institute will contribute significantly to the national Artificial Intelligence Grand Challenge within the UK Industrial Strategy, enabling York to establish a world-class facility that strengthens the UK’s position as a leader in the safe introduction of advanced technology.

The postholder will lead the new Institute and, along with academic colleagues, will occupy the flagship new building funded by the UK Research Investment Partnership Fund (UKRPIF) and the University of York. The building will house eight specialist laboratories, offices and meeting space. It will act as a catalyst to foster inter-departmental and industry collaboration to develop ambitious research, enterprise and skills initiatives in the area of advanced robotics, autonomy and trusted communications.

Our academics are leading projects of global importance that receive significant national and international funding in this area.

SCALE

The formation of an Institute and the recruitment of a new Director to lead and champion the RCAS agenda on behalf of the University follows a highly strategic expansion in RCAS initiatives, and a succession of major awards to the University of York:

- £10M from the Lloyd’s Register Foundation for the Assuring Autonomy International Programme
- £10.5M from Research England (UKRPIF scheme) to build a unique facility
- £10M from collaborative industry partners to establish the initiative
- £6.8M investment from the University of York
- £23M renewed funding from EPSRC to lead the UK Quantum Communications Hub
- £3M EPSRC funding to lead a Trustworthy Autonomous Systems Node in Resilience

The Director will be responsible for building upon these existing funding arrangements as well as identifying and delivering a further range of industrial collaborations.
Fun with Artificial Intelligence. Visitors at the York Festival of Ideas explore, meet and talk to robot Pepper.
THE ISA
FOUNDATIONS AND
GOVERNANCE

FOUNDATIONS
The newly formed Institute for Safe Autonomy builds upon expertise within the Departments of Computer Science, Physics and Electronic Engineering as evidenced by recent and current external funding for projects directly related to autonomous technology of c. £45 m.

In the last REF exercise, 90% research activity from Computer Science, 87% of research activity from Electronic Engineering and 77% of research activity from Physics were rated as 3*/4* and Computer Science was rated as 5th in the UK for Research Impact.

Working under the central Research Pillars of: Design & Verification, Assurance, Advanced Communications, and Society & Ethics, the Institute’s members are actively collaborating with industry to identify challenges, create novel solutions and develop these to a point where they are mature enough for uptake by industry, and where they can be used to inform regulatory practice. Academic leads are in place for each of these research pillars with outstanding progress being achieved in many areas prior to being brought together under one roof.

Design & Verification - Designing and verifying novel approaches to safety-centred software and hardware design.

Initial research challenges for this pillar include:
- Designing robotic solutions to address important societal problems
- Developing approaches to control that are resilient
- Developing techniques for software verification and validation that can be assured

Assurance - Overcoming barriers to assurance and regulation

Initial research challenges for this pillar include:
- Developing assurance methods for autonomous systems including AI and ML
- Developing new approaches for the design of dynamic safety assurance techniques
- Establishing effective means of evaluating autonomous systems in support of assurance
- Establishing effective means of assessing the safety of homogenous and heterogenous collections (swarms, clusters, etc.) of autonomous systems
- Validation of assurance methods, including dynamic safety cases and their refinement in practical settings

Advanced Communications - Enhancing capability for secure, resilient and reliable low latency communications

Initial research challenges for this pillar include:
- Establishing innovative communications networks to support autonomous systems in challenging environments
- Developing system architectures and networks to provide robust and efficient communications for autonomous systems that can be intelligently reconfigured
- Investigating the application of ML to verifiably deliver adaptive and reconfigurable protocols to enable ad hoc and intermittent communication between autonomous nodes
- Validating advanced communication approaches
- Developing secure communication technologies, including novel advances in Quantum Key Distribution (QKD) and approaches beyond QKD
- Translation of theoretical quantum communications to new experimental systems

Society and Ethics

In addition, all three pillars will contribute to a cross-cutting theme of Transparency, Trust and Public Acceptance that will aim to help overcome societal barriers to the acceptance of RCAS in order that the public can better make balanced decisions about risks and benefits.

Initial research challenges include:
- Develop an understanding of societal concerns about autonomous systems, and how these vary with application, degree of human control, etc
- Establish models that allow the ethical and legal issues associated with developing, deploying and operating autonomous systems to be understood and effectively communicated
- Work with policy-makers, law-makers and regulators to identify ways of ensuring that the introduction of autonomous systems is both safe and socially acceptable
- Engage in demonstrators to ‘ground’ the work in practical applications

DIRECTOR OF THE INSTITUTE FOR SAFE AUTONOMY (ISA)
UNIVERSITY OF YORK
Quantum Hub

The EPSRC Quantum Communications Hub is a synergistic partnership of ten UK research-leading universities led by York. It includes numerous private sector companies and public sector bodies that have come together in a unique collaboration to exploit fundamental laws of quantum physics for the development and commercialisation of secure communications technologies and services. The Hub is part of a national network of four Hubs, which in turn represent the core investment of the UK National Quantum Technology.

For further information on the work being undertaken at the University, please visit the following websites:

www.york.ac.uk/
www.york.ac.uk/assuring-autonomy/
www.york.ac.uk/yourrobots/
www.quantumcommshub.net/

GOVERNANCE

The academic groups brought together in the Institute for Safe Autonomy have the support of their respective Heads of Departments, who have contributed to the development of the Institute’s research vision. Chaired by the Dean of Sciences, the interim ISA director, the Director of Research & Enterprise, Heads of Departments, and professional staff currently form a management board that guides the development of the Institute and the development of the purpose-built new Institute building. Upon completion of the new facility these key individuals will form a project steering group. It is envisaged that these key individuals will provide valuable support to the Director in maintaining and facilitating links to the academic foundations of the Institute.

Upon appointment the Director will be tasked with formalising an Industry-led advisory group of key industrialists to the region and sector to identify future industry requirements and to guide external partnership and engagement strategy.

The Director position itself will be directly supported by a team of dedicated professional staff.

The Institute building will house approximately 100 academic staff drawn from across the Institute’s component research groups.

For further information on the Institute for Safe Autonomy, please visit our website:

www.york.ac.uk/safe-autonomy/
Director of the Institute for Safe Autonomy (ISA)

Role Description and Person Specification

Main purpose of the role

The Director will plan and direct the activities of the ISA to grow its profile as a world leading research, development and experimental centre for robotics and connected autonomous systems:

- To provide leadership for the ISA across its whole portfolio of activities.
- To take the lead in the development and implementation of a research strategy for the ISA, in conjunction with the academic research theme leads.
- To have overall responsibility for the development and implementation of a sustainable business strategy and business plan for the ISA.
- To develop an operational model for the ISA and secure the resources (human, infrastructure & financial) required to implement it and deliver against the ISA’s key objectives.
- To develop and implement a marketing and communications strategy for ISA ensuring visibility to industry, funding bodies, other HEI partners, research networks, and clients.
- To seek new opportunities for research funding, for business growth and development for the ISA including spinouts and partnerships with established companies.
- To develop long-term partnerships for the ISA, including engaging industry in research and use of the ISA facilities as part of their product development and assessment activities.
- To develop an effective local ecosystem, exploiting and developing the opportunities in York and the region to build ISA’s capabilities and influence.
- To work at a national and international level to influence policy and regulation that facilitate the widespread take up of ISA’s research outputs.
- To initiate and nurture good working relationships with Government departments in order to support the UK’s research and productivity agenda, and to ensure that the University, City of York, and wider region are able to benefit from future Government investment.
- To establish and implement a governance structure for the ISA’s whole portfolio of activities, ensuring effective liaison both within and outside the University.
- To coordinate with relevant Heads of Department to manage staff working in the ISA.
- To ensure adherence to principles and regulations relevant to the operation of the ISA in collaboration with University Professional Services Staff.

The Director reports to the Dean of the Faculty of the Sciences as line manager.

At a glance

Salary: Competitive
Contract type: Open
Hours of work: 37 per week (flexibility available)
Based at: University of York, Heslington Campus
Person Specification

Our essential and desirable criteria for this appointment are detailed below:

**Qualifications**
- A good honours degree in STEM subject.
- A PhD in STEM or equivalent experience. (Desirable);

**Experience, Knowledge and Skills**
- Relevant industry experience and a track record of achievement in research and/or development at a senior professional level in either large international companies or SMEs.
- Understanding of the strategic context in which the ISA will operate.
- Experience of working with academia, Government agencies, civil servants and politicians.
- Demonstrable ability to communicate with and influence a range of stakeholders in academia, industry and government.
- Highly developed skills in strategic and operational planning and proven ability to achieve strategic and operational delivery.
- Capability to lead organisational development.
- Proven capability of managing intellectual property arising out of research and its successful commercialisation.
- Track record of creating, implementing and delivering on relevant business activities e.g. business plan, operating plan, sales and marketing plan and resource plan.
- Significant experience in leading, developing and motivating staff so as to create a dynamic, industry focused environment where staff can maximise their personal contributions.
- Demonstrable track record of successful leadership of innovative research programmes or businesses, including change management.
- Track record of securing significant funding (public and private) for research and commercialisation.
- Demonstrable understanding of commercial governance.
- Experience of working with relevant national and international industry networks.

**Personal Characteristics**
- Personal credibility with the skills to work collaboratively, fostering relationships and influencing a broad range of internal and external partners.
- An approach to working with integrity, openness and honesty at all times, together with a strong commitment to equality, diversity and inclusion.
- A passion to deliver the University’s aims and objectives, coupled with an enthusiasm for all that it is seeking to achieve and to role model the university’s values in all aspects of the role.
- Resilient, able to work well in a fast changing environment and with conflicting priorities and remain calm in challenging situations.
WELCOME TO THE UNIVERSITY OF YORK

Who we are

We are a world-class institution, focused on creating an environment of excellence in which all our students, staff and researchers can thrive. Our Research Strategy encompasses our vision that York should provide a home for some of the best research in the world. (https://www.york.ac.uk/research/)

We are a high-performing member of the Russell Group, ranked 16th in the Guardian’s Best University UK Universities 2021 League Table, and 30th in the Complete University Guide 2020. We have been awarded TEF Gold for our research-led teaching which provides “consistently outstanding outcomes for students from all backgrounds”.

Our Equality, Diversity and Inclusion Strategy speaks to the core of our values. We hold 16 awards from Athena SWAN, recognising the advancement of gender equality: representation, progression and success for all.

Our vision is to be a university for public good, supported by five key strategic themes:

- Internationalism
- Sustainability
- Civic responsibility
- Research
- Student experience and teaching
Our new strategy A University for Public Good, is in development and will be informed by the principles inspired by those which underpinned the foundation of the University - they are:

- Environmental sustainability
- Equality, diversity and inclusion
- Collaboration across disciplinary boundaries
- Internationalism

Our Senate and Council have recently approved a new set of Strategic Aims setting out our focus over the next ten years. From these aims we will next develop a set of strategies and objectives providing direction for the University community and clearly signalling our priorities.

- Research with relevance and reach
- Ethical and empowering education
- Positive and productive partnerships
- Lasting legacies
- Agile, able and aligned

Our five strategic aims are reflective of our Vision for a University for Public Good which can be summarised as follows.

Civic responsibility
In order to fully demonstrate the value of our institution we need to become leaders in our locality and region. We need to play a key role in the economic, social and cultural development of our region and to co-curate solutions with our local and regional communities that can deliver inclusive and sustainable growth.

Partnerships
The University is not a set of buildings in a single place but the centre of a network of local, national and international relationships. We need to develop our mission through a range of institutions at local, regional and international level. We must think about how we build relationships through other education partners in the region to generate a more integrated sense of education and more variegated educational routes.

Interdisciplinarity
Whilst recognising the continued importance of disciplines we need to think about how we build on our reputation for interdisciplinary work in order to enhance our research and teaching. Interdisciplinarity should be at the core of what we do. Research and teaching needs an interdisciplinary approach to tackle global problems and to prepare students for an increasingly complex world.

York has an excellent reputation for fostering a rigorously interdisciplinary approach to research. Our collegial culture and a track record of forging partnerships with external organisations allows us to address complex global problems in innovative ways.

York’s inter-disciplinary research centres include BioYork, Digital Creativity Labs, Interdisciplinary Global Development Centre, Institute for Safe Autonomy, Leverhulme Centre for Anthropocene Biodiversity and York Environmental Sustainability Institute.

Integrated student experience
We will develop an integrated and holistic student experience that recognises that students wish to access higher education in a variety of ways. We need to expand the development of more innovative and flexible programmes that use technology to teach differently and to allow students to access HE through a range of routes and over a lifetime.

Developing people
We must develop all staff and students, whatever their roles and backgrounds, to their full potential. We must revisit and renew our commitment to inclusion so that it meets today's social challenges. We must ensure that the University creates new opportunities for fulfilling ways of working and fair working conditions that enrich the lives of all those involved in our community.

Internationalism
Staff and students from York should be citizens of the world. Research and teaching need to be integrated into mutually beneficial international partnerships. We need to ensure that students receive an international education and that we develop new ways of delivering an international education that is compatible with our sustainability goals and is co-curated with international partners in a spirit of reciprocity and mutual respect.

Agility
We need to ensure that the way we organise ourselves fosters and enhances innovation and new ways of thinking so that we can respond effectively and rapidly to new intellectual challenges, the changing global market, and the demands and interests of students, funding bodies and wider society.

Professor Charlie Jeffery: Vice-Chancellor Inauguration Speech
https://www.york.ac.uk/about/organisation/management/v-inauguration/
UNIVERSITY KEY NUMBERS

**18,040**
Total students (FTE)*

**£392m**
Total income*

**133rd**
in the Times Higher Education World University Rankings (2021)

**4,436**
Total staff*

**£86m**
Total research income*

**16th**
in The Times and Sunday Times university league table 2020

**16th**
in the Times Higher Education Europe Teaching Rankings (2021)

**94%**
of our graduates find work or further study within six months of graduating (DLHE 2017-2018)

**30th**
overall in the Complete University Guide 2020

**16th**
in the Guardian University Guide 2021

**16**
Athena Swan awards

**21%**
increase in international recruitment during last four years*

*University of York Annual Report 2019
Equality and diversity are key to our success as we seek to promote inclusion across our activities.
Our commitment to equality, diversity and inclusion

Founded on the principles of excellence, equality and opportunity for all, the University is proud to create an environment that attracts staff and students from all over the world. What we gain from diversity is immeasurable.

Our Equality, Diversity and Inclusion Strategy, which was developed in partnership with our staff and student communities, describes our commitment to create a culture where everyone can contribute to university life, knowledge and growth.

We want to create a working, learning, social and living environment that will enable all staff and students to achieve their full potential. Our strategy sets out an ambitious set of objectives to succeed in our commitment, but we have a challenging journey ahead. We recognise that we are not truly representative of our communities locally, nationally and internationally. We would like to pay particular focus to gender parity across all levels, particularly in senior roles; the recruitment, retention and success of a more ethnically diverse staff and student community; an accessible and inclusive campus and ensuring that the values and behaviours we expect from everyone embrace inclusive responsibility and leadership.

Opportunity for all
Our outreach programmes and widening participation work have made us one of the most socially diverse universities among our peers. The York Students in Schools (YSIS) programme has been providing a helping hand in the city’s classrooms for 25 years, placing around 700 students with local schools every year. It recently introduced a new English and Mathematics tutoring scheme.

- A report by The Reform Research Trust in September 2017 ranked York second out of 29 high-tariff institutions for our track record in increasing access for disadvantaged students from 2011/12 to 2015/16.

Wellbeing and support
Students are encouraged to balance their studies with activities and interests to give them a healthier and more rounded student experience. We have invested heavily in support of physical health with new and improved sports facilities, and in mental health through our Open Door counselling and crisis team which now opens in the evenings during term time. We have also developed a support network of staff trained in Mental Health First Aid. University staff have access to wellbeing help and support, and can access advice through our well@york site. We are about to launch a new health and wellbeing plan with actions informed by our latest staff survey.

“Neither my mum nor my dad went to university so my generation is the first to actually go. From Next Step York I gained a more in-depth experience of university life as well as mentoring from a current university student.”

Bilal, Widening Participation student

1. Joining the elite: how top universities can enhance social mobility, Reform Research Trust, September 2017. “High-tariff” is defined as English universities which are either a member of the Russell Group or have entry tariffs higher than the lowest in the Russell Group.
People fall in love with York the moment they visit. The city of York is lively, beautiful and full of culture. It is regularly voted one of the best places to live and visit in the UK and was named the best place to live in the UK 2018 by The Sunday Times – the University’s extensive public engagement programmes were cited as one of the many contributing factors that led to this accolade.

York is a medieval walled city with a vibrant heritage that celebrates its Roman and Viking past. Towering over the city’s landscape is York Minster, the largest Gothic cathedral in Northern Europe, and an architectural anchor point. York is embracing contemporary culture through its status as UNESCO City of Media Arts, underpinned by a thriving digital and creative sector and a range of festivals. The city has three museums, countless places to eat and drink (that are regularly and positively reviewed in the national media), a strong independent retail experience, a vibrant nightlife, and one of the best racecourses in the country.

York is an ideal place to raise a family, with a great range of high-performing schools, both state and independent. We are also rated the safest city-based university in the UK (Complete University Guide – Top 10 Universities in England and Wales with Low Crime Levels 2017). York is the perfect base from which to explore the stunning scenery of Yorkshire. We have two of the country’s most beautiful national parks right on our doorstep: the Yorkshire Dales and the North York Moors. Coastline towns such as Scarborough and historic Whitby are only slightly further away.

Great rail and transport networks also connect you with other major cities in the UK. York is only a short train ride away from Leeds (20 minutes), Manchester (1.5 hours), London (2 hours) and Edinburgh (2.5 hours). We are also close to major road links including the M1 and M62.

“York is the most beautiful place I have ever lived in. I love the history that lies behind each famous site, from the Minster to the Shambles.”

Sharon (BSc Biomedical Science)
The iconic Central Hall is among a number of buildings and features on campus with Grade II listed status; much of our landscape is designated as a Registered Park and Garden, the status held by some of Britain’s finest estates.
HOW TO APPLY

Perrett Laver, the appointed advisers of the University, are conducting an executive search exercise alongside the public advertisement for this role. Perrett Laver will support the Selection Committee in the discharge of its duties. Applications should consist of a full curriculum vitae detailing career and achievements, as well as a covering letter addressing the role description and person specifications.

Applications should be uploaded via https://candidates.perrettlaver.com/vacancies/ quoting the reference 4871.

The closing date is midnight GMT, 17 January 2021.