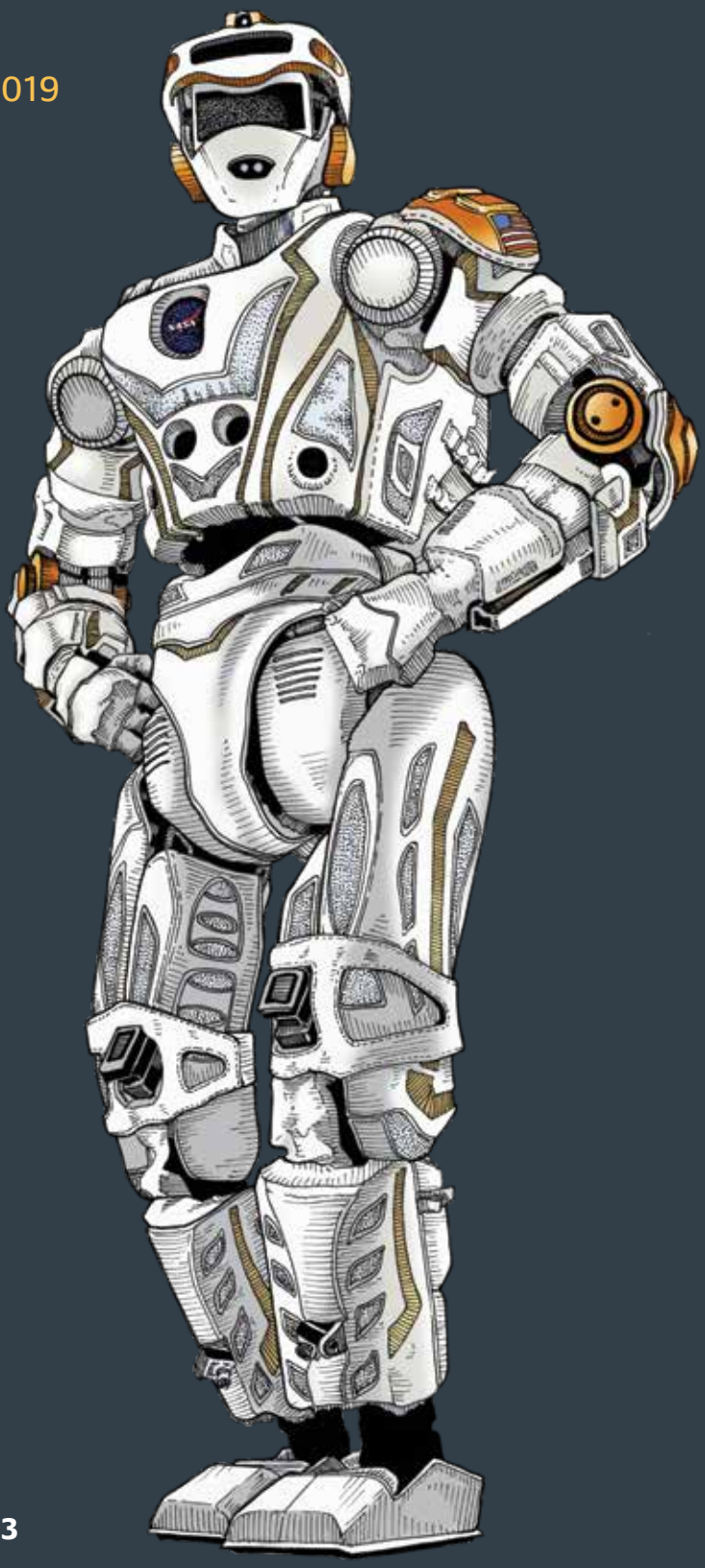
THE UNIVERSITY
of EDINBURGH

Informatics

Postgraduate Opportunities 2019



Influencing the world since 1583

"Edinburgh isn't so much a city, more a way of life … I doubt I'll ever tire of exploring Edinburgh, on foot or in print."

Ian Rankin
Best-selling author and alumnus

Influencing the world since 1583

14 Nov 2018
Postgraduate Open Day
www.ed.ac.uk/postgraduate-open-day

For more than 400 years the University of Edinburgh has been changing the world. Our staff and students have explored space, won Nobel Prizes and revolutionised surgery. They've published era-defining books, run the country, made life-saving breakthroughs and laid the foundations to solve the mysteries of the universe.

Our distinguished alumni include NASA astronaut Piers Sellers, former MI5 Director-General Dame Stella Rimington, Olympians Sir Chris Hoy and Katherine Grainger and historical greats such as philosopher David Hume, suffragist Chrystal Macmillan, who founded the Women's International League for Peace and Freedom, and physicist and mathematician James Clerk Maxwell.

International collaboration
An internationally renowned centre for academic excellence, we forge world-class collaborations with partners such as the California Institute of Technology (Caltech), Stanford University, the University of Melbourne, Peking University, the University of Delhi and the University of KwaZulu-Natal. As a member of the League of European Research Universities and the Coimbra Group, we link up with leading institutions across Europe.

Linking research and commerce
We were one of the first UK universities to develop commercial links with industry, government and the professions. Edinburgh Innovations promotes and commercialises our research excellence and can assist you in taking the first step to market, through collaborative research, licensing technology or consultancy.

Enhancing your career
We are committed to embedding employability in your University experience and have an impressive track record for graduate employment. From volunteering schemes to our sector-leading careers service, we provide you with opportunities to develop your skills, knowledge and experience, giving you an edge in the competitive job market.

TOP 50
We're consistently ranked one of the top 50 universities in the world. We're 18th in the 2019 QS World University Rankings.

4TH
We're ranked fourth in the UK for research power, based on the 2014 Research Excellence Framework.*

83%
The majority of our research – 83 per cent – is considered world leading or internationally excellent.*

TOP 100
We are ranked in the top 10 in the UK and in the top 100 in the world for the employability of our graduates.†

£373m
In 2016/17 we won £373 million in competitive research grants.

24
We are associated with 24 Nobel Prize winners.

13TH
We're ranked 13th in the world's most international universities.‡ Since 2010, we have taught students from 82 per cent of the world's countries.

* *Times Higher Education*, Overall Ranking of Institutions
† *Times Higher Education*, Global Employability University Ranking 2017
‡ *Times Higher Education*: The World's Most International Universities 2017

twitter.com/applyedinburgh
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youtube.com/edinburghuniversity
instagram.com/applyedinburgh

Taught masters programmes

We offer a suite of taught master of science (MSc) programmes, each featuring compulsory and option courses that allow you to tailor your study to your particular interests and career goals.

www.ed.ac.uk/pg/107

Artificial Intelligence

MSc 1 yr FT (2-3 yrs PT available for UK/EU students)

Programme description
This MSc is taught at the UK's longest established centre for artificial intelligence, which remains one of the best in the world.

Many of your courses will be taught by internationally renowned researchers, spanning a wide range of areas in artificial intelligence and drawing on research in related fields such as neuroscience, cognitive science, linguistics and mathematics. We aim to give you the fundamental knowledge and practical skills needed to design, build, and apply AI systems in your chosen area of specialisation.

Programme structure
You will follow two taught semesters of lectures, tutorials, practical work and written assignments, after which you will complete a major project and dissertation.

SPECIALIST AREAS

A wide range of course options is available. Recommended paths through the programme enable you to specialise in particular areas of AI according to your background and interests. Courses offered reflect staff research interests, which include knowledge representation and reasoning, applied and theoretical machine learning, natural language processing, robotics, and computer vision.

COMPULSORY COURSES PREVIOUSLY OFFERED INCLUDE:

Informatics Research Review; *Informatics Project Proposal*; *Introduction to Java Programming* (for students who did not already meet the programming requirements for the taught masters); *Dissertation*.

OPTION COURSES PREVIOUSLY OFFERED INCLUDE:

Accelerated Natural Language Processing; Advanced Vision; Agent Based Systems; Algorithmic Game Theory and its Applications; Human-Computer Interaction; Introductory Applied Machine Learning; Machine Learning and Pattern Recognition; Machine Translation; Neural Information Processing; Robotics: Science and Systems; Reinforcement Learning.

Career opportunities
Our students are well prepared for both employment and academic research. The emphasis is on practical techniques for the design and construction of intelligent systems, preparing graduates to work in a variety of specialisms, from fraud detection software to recommendation systems and assistive robots.

Recent graduates are now working at international firms such as Amazon, Google, IBM, and JP Morgan, as well as at smaller companies and startups, both in the UK and abroad.

Entry requirements
A UK 2:1 honours degree, or its international equivalent (**www.ed.ac.uk/international/graduate-entry**), in informatics, artificial intelligence, cognitive science, computer science, electrical engineering, linguistics, mathematics, philosophy, physics, psychology, or another quantitative discipline. You should have computer programming experience, with an introductory programming course on your transcript, and the equivalent of 60 credits of mathematics during your degree that have typically covered the following subjects/topics: calculus (differentiation and integration), linear algebra (vectors and multidimensional matrices), discrete mathematics and mathematical reasoning (e.g. induction and reasoning, graph theoretic models, proofs),and probability (concepts in discrete and continuous probabilities, Markov Chains, etc).

English language requirements
See page 24.

Fees and funding
For fees see page 24 and for funding information see page 26.

Programme Contact Informatics Teaching Organisation
Tel +44 (0)131 650 5194
Email ito@inf.ed.ac.uk

My experience:

www.ed.ac.uk/informatics/nazgul-tazhigaliyeva

See also…

Some of our taught masters are closely related to those in other Schools. You may be interested in programmes offered by Edinburgh College of Art, or the Schools of Biological Sciences; Mathematics; Philosophy, Psychology & Language Sciences; or Physics & Astronomy.

www.ed.ac.uk/prospectus-request

www.ed.ac.uk/pg/108

Cognitive Science

MSc 1 yr FT (2-3 yrs PT available for UK/EU students)

Programme description
Cognitive science is an exciting, interdisciplinary area spanning fields including computer science, linguistics, psychology, neuroscience and philosophy. Edinburgh is a widely recognised leader in the area and the School of Informatics has particular strengths in the computational study of higher cognition and reasoning, speech and language, and neuroscience, as well as in related areas such as human-computer interaction, robotics, and computer vision. This programme offers courses in many of these areas, providing a strong grounding in shared computational and mathematical foundations while allowing you to pursue specialised courses in your particular interests. Many students also take advantage of relevant courses offered by the School of Philosophy, Psychology & Language Sciences or other parts of the University.

Programme structure
You will follow two taught semesters of lectures, tutorials, practical work and written assignments, after which you will complete a major individual research project and dissertation.

SPECIALIST AREAS

A wide range of course options is available. Recommended paths through the programme enable you to specialise in particular areas of cognitive science according to your background and interests. Courses offered reflect staff research interests, which include knowledge representation and reasoning, speech and language processing, usability and design, and computational models of mind and brain.

COMPULSORY COURSES PREVIOUSLY OFFERED INCLUDE:

Informatics Research Review; *Informatics Project Proposal*; *Introduction to Java Programming* or *Computer Programming for Speech and Language Processing* (for students who did not already meet the programming requirements for the taught masters); *Dissertation*.

OPTION COURSES PREVIOUSLY OFFERED INCLUDE:

Accelerated Natural Language Processing; Advanced Vision; Automated Reasoning; Automatic Speech Recognition; Computational Cognitive Neuroscience; Computational Cognitive Science; Human-Computer Interaction; Natural Language Understanding; Neural Computation.

Career opportunities
This programme will give you an understanding of the expanding domain of cognitive science through formal study and experiments. It is excellent preparation for a rewarding academic or professional career. The quality and reputation of the University, the School and this programme will enhance your standing with many types of employer. Recent graduates are now working as software engineers, analysts and language scientists for companies such as British Telecom and Intel.

Entry requirements
A UK 2:1 honours degree, or its international equivalent (**www.ed.ac.uk/international/graduate-entry**), in informatics, artificial intelligence, cognitive science, computer science, electrical engineering, linguistics, mathematics, philosophy, physics or psychology, plus experience in computer programming. You must have a sufficient mathematical (60 credits equivalent of maths) and informatics background for your chosen area of study.

English language requirements
See page 24.

Fees and funding
For fees see page 24 and for funding information see page 26.

Programme Contact Informatics Teaching Organisation
Tel +44 (0)131 650 5194
Email ito@inf.ed.ac.uk

www.ed.ac.uk/pg/110

Computer Science

MSc 1 yr FT (2-3 yrs PT available for UK/EU students)

Programme description
Our internationally recognised expertise in core computer science ranges from computer architecture to theoretical computer science. You will study the design, analysis, implementation and use of computer systems, from the components of a single processor to networks as vast as the internet. You may pursue a theoretical direction with courses such as algorithms, programming languages, or cryptography. We provide a solid foundation in theory and a variety of practical techniques.

Programme structure
You will take two taught semesters, a major project and dissertation.

SPECIALIST AREAS

A wide range of options is available. Recommended paths enable you to specialise in areas of computer science according to your own interests. Courses reflect staff research interests, include databases, computer systems and high-performance computing, cybersecurity and privacy, programming languages, and theoretical computer science.

COMPULSORY COURSES PREVIOUSLY OFFERED INCLUDE:

Informatics Research Review; *Informatics Project Proposal*; *Introduction to Java Programming* (for students who did not already meet the programming requirements for the taught masters); *Dissertation*.

OPTION COURSES PREVIOUSLY OFFERED INCLUDE:

Advanced Databases; Algorithmic Game Theory and its Applications; Computational Complexity; Computer Graphics; Computer Networking; Extreme Computing; Formal Verification; Human-Computer Interaction; Internet of Things: Systems, Security, and the Cloud; Introduction to Quantum Computing; Introductory Applied Machine Learning; Parallel Architectures; Parallel Programming Languages and Systems; Software Architecture, Process and Management; Secure Programming.

Career opportunities
You will develop specialist, advanced skills in the development, construction and management of advanced computer systems. Your practical experience and thorough theoretical understanding of the field, will make you attractive to a wide range of employers or prepare you for further academic study. Recent graduates work in a variety of computing roles, such as software or systems developers and engineers, analysts and applications developers, for companies such as Cisco, Toshiba, Microsoft, Athlon, Skyscanner, Amazon, BT, Total, Honeywell and JPMorgan Chase.

Entry requirements
A UK 2:1 honours degree, or its international equivalent (**www.ed.ac.uk/international/graduate-entry**), in informatics, artificial intelligence, cognitive science, computer science, electrical engineering, linguistics, mathematics, philosophy, physics, psychology, or another quantitative discipline. You should have computer programming experience, with an introductory programming course on your transcript, and the equivalent of 60 credits of mathematics during your degree that have typically covered the following subjects/topics: calculus (differentiation and integration), linear algebra (vectors and multidimensional matrices), discrete mathematics and mathematical reasoning (e.g. induction and reasoning, graph theoretic models, proofs),and probability (concepts in discrete and continuous probabilities, Markov Chains etc).

English language requirements
See page 24.

Fees and funding
For fees see page 24 and for funding information see page 26.

Programme Contact Informatics Teaching Organisation
Tel +44 (0)131 650 5194
Email ito@inf.ed.ac.uk

www.ed.ac.uk/pg/902

Data Science

MSc 1 yr FT (2-3 yrs PT available for UK/EU students)

Programme description
Data science is the study of the computational principles, methods and systems for extracting and structuring knowledge from data, and the application and use of those principles. Large data sets are now generated by almost every activity in science, society, and commerce – ranging from molecular biology to social media, from sustainable energy to health care.

As an MSc Data Science student you will explore how to efficiently find patterns in these vast streams of data. Many research areas have tackled parts of this problem: machine learning focuses on finding patterns and making predictions from data; ideas from algorithms and databases are required to build systems that scale to big data streams; and separate research areas have grown around different types of unstructured data such as text, images, sensor data, video and speech.

Programme structure
You will follow two taught semesters of lectures, tutorials, project work and written assignments, after which you will complete a major project and dissertation.

You will acquire a breadth of expertise by taking at least one course from each of three areas of data science (machine learning and optimization; databases and data management; applications). Additional courses can be used to gain further depth in any area.

COMPULSORY COURSES PREVIOUSLY OFFERED INCLUDE:

Informatics Research Review; *Informatics Project Proposal; Dissertation*.

OPTION COURSES PREVIOUSLY OFFERED INCLUDE:

Applied Databases; *Bioinformatics 1*; *Combinatorial Optimization*; *Database Systems*; *Extreme Computing*; *Introductory Applied Machine Learning*; *Data Mining and Exploration*; *Reinforcement Learning*; *Social and Technological Networks; Text Technologies for Data Science*.

Career opportunities
You will develop specialist, advanced skills in data science methods and their applications. You will gain practical experience and a thorough theoretical understanding of the field, making you attractive to a wide range of employers or preparing you for further academic study.

Entry requirements
A UK 2:1 honours degree, or its international equivalent (**www.ed.ac.uk/international/graduate-entry**), in informatics, artificial intelligence, cognitive science, computer science, electrical engineering, linguistics, mathematics, philosophy, physics, psychology, or another quantitative discipline. You should have computer programming experience, with an introductory programming course on your transcript, and the equivalent of 60 credits of mathematics during your degree that have typically covered the following subjects/topics: calculus (differentiation and integration), linear algebra (vectors and multidimensional matrices), discrete mathematics and mathematical reasoning (e.g. induction and reasoning, graph theoretic models, proofs),and probability (concepts in discrete and continuous probabilities, Markov Chains, etc).

English language requirements
See page 24.

Fees and funding
For fees see page 24 and for funding information see page 26.

Programme Contact Informatics Teaching Organisation
Tel +44 (0)131 650 5194
Email ito@inf.ed.ac.uk

www.ed.ac.uk/pg/803 (Design Informatics)
www.ed.ac.uk/pg/802 (Advanced Design Informatics)

Design Informatics/ Advanced Design Informatics

MSc 1 yr FT (Design Informatics) or
21 mths FT (Advanced Design Informatics)

Programme description
Design informatics combines data science with design thinking in a context of critical enquiry and speculation. We build a value-aware, reflective practice at the interface between data and society, combining theory and research with an open-ended process of making and hacking.

Our central premise is that data is a medium for design: by shaping data, we shape the world around us. Data science provides the groundwork for this, with design thinking underpinning reflective research through design. You will use this in working with the internet of things and physical computing, machine learning, speech and language technology, usable privacy and security, data ethics, and blockchain technologies. You will connect technology with society, health, architecture, fashion, bio-design, craft, finance, tourism, and a host of other real world contexts, through case studies and individual and collaborative projects. You will understand user experience in the wider sociocultural context, through an agile programme of hacking, making and materialising new products and services.

The courses *Design with Data* and *Design Informatics Project* give you the opportunity to work with an external partner, such as the Royal Bank of Scotland, Edinburgh City Council, or the National Museum of Scotland.

Programme structure
Throughout the programme, you will be working both individually and in teams of designers and computer scientists. Everyone will have to write code and everyone will have to make physical objects. Several courses, including your dissertation, will involve presenting the artefact, product, service or interactive experience that you have created to the general public in a show.

COMPULSORY COURSES PREVIOUSLY OFFERED INCLUDE:

Design Informatics: Histories and Futures; *Case Studies in Design Informatics 1*; *Data Science for Design; Design with Data*; *Design Informatics Project*; *Dissertation;* plus *Case Studies 2* (Advanced Design Informatics only).

OPTION COURSES PREVIOUSLY OFFERED INCLUDE:

You may choose 20 credits (60 for Advanced Design Informatics) of option courses from the School of Informatics, Edinburgh College of Art, or the School of Philosophy, Psychology & Language Sciences.

Career opportunities
This programme will put you at the cutting edge of the intersection between data science, design, and information technology, opening a host of opportunities to work with companies, charities and the public sector. We encourage entrepreneurship. For those who wish to deepen their research practice, the programme also provides a solid foundation for a PhD in related areas.

Entry requirements
A UK 2:1 honours degree, or its international equivalent (**www.ed.ac.uk/international/graduate-entry**), in computer science, informatics, artificial intelligence, physics, engineering, psychology, philosophy, linguistics or neuroscience. Your application should show evidence of solid computer programming skills in a programming language.

English language requirements
See page 24.

Fees and funding
For fees see page 24 and for funding information see page 26.

Programme Contact Informatics Teaching Organisation
Tel +44 (0)131 650 5194
Email ito@inf.ed.ac.uk

www.ed.ac.uk/pg/111

Informatics

MSc 1 yr FT (2-3 yrs PT available for UK/EU students)

Programme description
Informatics is the study of how natural and artificial systems store, process and communicate information. Edinburgh has a long-standing tradition of world-class research and teaching in informatics, a discipline central to a new enlightenment in scholarship and learning, and critical to the future development of science, technology and society. This programme takes full advantage of our expertise in research and teaching to offer a wide choice of courses. These span core areas of computer science and interdisciplinary areas focusing on information processing in natural systems, such as bioinformatics, neuroinformatics, and cognitive science.

Programme structure
You will complete two taught semesters of lectures, tutorials, project work and written assignments, followed by a major project and dissertation.

SPECIALIST AREAS

A wide range of course options is available. Recommended paths through the programme enable you to specialise in particular areas of informatics. Courses offered reflect staff research interests, which include most areas of computer science and artificial intelligence, as well as computational approaches to cognitive science, neuroscience and biological systems.

COMPULSORY COURSES PREVIOUSLY OFFERED INCLUDE:

Informatics Research Review; *Informatics Project Proposal*; *Introduction to Java Programming* (for students who did not already meet the programming requirements for the taught masters); *Dissertation*.

OPTION COURSES PREVIOUSLY OFFERED INCLUDE:

A range of more than 50 option courses is available.

Career opportunities
Our graduates are well regarded by potential employers worldwide. Many go on to work in the technology industry as software engineers, IT consultants, programmers and developers, and may work with the software and hardware giants that have become household names. Others go on to further study and research. Recent graduates are now employed as software developers and engineers, programmers, games designers and analysts for companies including Airbus, Citigroup, NCR Corporation, BT and Skyscanner.

Entry requirements
A UK 2:1 honours degree, or its international equivalent (**www.ed.ac.uk/international/graduate-entry**), in informatics, artificial intelligence, cognitive science, computer science, electrical engineering, linguistics, mathematics, philosophy, physics, psychology, or another quantitative discipline. You should have computer programming experience, with an introductory programming course on your transcript, and the equivalent of 60 credits of mathematics during your degree that have typically covered the following subjects/topics: calculus (differentiation and integration), linear algebra (vectors and multidimensional matrices), discrete mathematics and mathematical reasoning (e.g. induction and reasoning, graph theoretic models, proofs),and probability (concepts in discrete and continuous probabilities, Markov Chains etc).

English language requirements
See page 24.

Fees and funding
For fees see page 24 and for funding information see page 26.

Programme Contact Informatics Teaching Organisation
Tel +44 (0)131 650 5194
Email ito@inf.ed.ac.uk

See also...
You may also be interested in the master of arts (MA) or master of fine arts (MFA) Design Informatics programme in the Edinburgh College of Art prospectus (www.ed.ac.uk/pg/821).

www.ed.ac.uk/prospectus-request

Edinburgh Parallel Computing Centre (EPCC) taught masters programmes

www.ed.ac.uk/pg/187 (High Performance Computing)
www.ed.ac.uk/pg/871 (High Performance Computing with Data Science)

High Performance Computing/ High Performance Computing with Data Science

MSc 1 yr FT (2 or 3 yrs PT available for UK/EU students)
PgDip High Performance Computing 9 mths FT

Programme description
You will study at EPCC, the UK's leading supercomputing centre. EPCC is a major provider of high performance computing (HPC) training in Europe with an international reputation for excellence in HPC education and research. Our staff have a wealth of expertise across all areas of HPC, parallel programming technologies and data science. Our two MSc programmes have a strong practical focus and provide access to leading-edge HPC systems such as Cirrus, a national Tier-2 HPC system, and, previously, ARCHER, the UK's national supercomputing service, with more than 100,000 CPU cores. EPCC's current list of hosted systems can be found online: **www.epcc.ed.ac.uk/facilities**

Programme structure
Both programmes take the form of two semesters of taught courses followed by a dissertation project. Your studies will have a strong practical focus and you will have access to a wide range of HPC platforms and technologies, up to and including national level HPC systems and cutting-edge hardware.

Both programmes include compulsory courses (six for HPC, seven for HPC with Data Science), which provide a broad-based coverage of the fundamentals of HPC, parallel computing and (for HPC with Data Science) data science. Optional courses focus on specialist areas relevant to computational and data science. Assessment is by a combination of coursework and examination.

COMPULSORY COURSES PREVIOUSLY OFFERED INCLUDE:

Message-passing Programming; Threaded Programming; Programming Skills; Software Development; Project Preparation. **HPC:** *HPC Architectures.* **HPC with Data Science:** *Fundamentals of Data Management; Data Analytics with High Performance Computing.*

OPTION COURSES PREVIOUSLY OFFERED INCLUDE:

Design and Analysis of Parallel Algorithms; Numerical Algorithms for High Performance Computing; Advanced Parallel Techniques; Parallel Design Patterns; Performance Programming. You will also have opportunities to take courses from a selection offered within the School of Informatics and one course from elsewhere in the College of Science & Engineering. Further details are available online.

MSc High Performance Computing
HPC is the use of powerful processors, networks and parallel supercomputers to tackle problems that are very computationally- or data-intensive. You will learn leading-edge HPC technologies and skills to exploit the full potential of the world's largest supercomputers and multicore processors. This is a well-established programme that has been successful in training generations of specialists in parallel programming.

MSc High Performance Computing with Data Science
Data science involves the manipulation, processing and analysis of data to extract knowledge, and HPC provides the power that underpins it. You will learn the multidisciplinary skills and knowledge in both HPC and data science to unlock the knowledge contained in the increasingly large, complex and challenging data sets that are now generated across many areas of science and business.

Career opportunities
Our graduates are employed across a range of commercial areas, for example software/applications development, petroleum engineering, finance and HPC support. Others have gone on to PhD research in fields that use HPC technologies, including astrophysics, biology, chemistry, geosciences, informatics and materials science.

Industry-based projects
Through EPCC's strong links with industry, we also offer you the opportunity to undertake your dissertation project in collaboration with industrial partners, including local, national and international companies. Further information is available online.

Entry requirements
A UK 2:1 honours degree, or its international equivalent (**www.ed.ac.uk/international/graduate-entry**), in a relevant subject. You must also be a competent programmer, for example in C, C++, Python, Fortran or Java. We will also consider your application if you have equivalent work experience.

English language requirements
See page 24.

Fees and funding
For fees see page 24 and for funding information see page 26.

EPCC offers a minimum of two John Fisher HPC Masters Scholarships, open to all nationalities. Each scholarship has a value equivalent to half of your fees for one academic year.

More information: **www.epcc.ed.ac.uk/msc/fees-funding**

Contact Ben Morse
Tel +44 (0)131 651 3398
Email msc@epcc.ed.ac.uk

"EPCC's MSc in High Performance Computing has always been a leader in its field. Coupling it to data science responds to the huge increase in demand for graduates with both HPC and data skills from both science and business."

Professor Mark Parsons, Executive Director, EPCC

Online learning programmes

Online learning

www.ed.ac.uk/pg/906

Data Science, Technology & Innovation

MSc 6 yrs PT. MSc (Medical Informatics specialism) 6 yrs PT
PgDip 4 yrs PT. PgCert 2 yrs PT
PgProfDev up to 2 yrs PT

Programme description
Demand is growing for high value data specialists across the sciences, medicine, arts and humanities. The aim of this unique, modular, online learning programme is to fully equip tomorrow's data professionals, offering different entry points into the world of data science, and enhance existing career paths with an additional dimension in data science. You will develop a strong foundation of knowledge of specific disciplines as well as direction in technology, concentrating on the practical application of data research in the real world.

Programme structure
For MSc, you must complete *Practical Introduction to Data Science*, 100 credits from the courses listed below, and a dissertation. For MSc (Medical Informatics specialism), you must complete *Medical Informatics, Research and Evaluation in eHealth*, 90 credits from the courses listed below, and a dissertation. For PgDip, you must complete *Practical Introduction to Data Science* and 100 credits from the courses listed below. For PgCert, you must complete *Practical Introduction to Data Science* and 40 credits from the courses listed below. For Postgraduate Professional Development (PgProfDev) you may choose a maximum of 50 credits from the courses listed below.

TAUGHT COURSES INCLUDE:

Practical Introduction to Data Science; Practical Introduction to High Performance Computing; Engaging with Digital Research; Managing Digital Influence; Social Shaping of Digital Research; Technologies of Civic Participation; Understanding Data Visualisation; The Use and Evolution of Digital Data; Ethics and Governance of eHealth; Introduction to Health Informatics and eHealth; Health Informatics: Core Technologies and Systems; Introductory Applied Machine Learning; Introduction to Java Programming; Medical Informatics; Neuroimaging: Common Image Processing Techniques 1; Neuroimaging: Common Image Processing Techniques 2; Public Health Informatics; Telemedicine and Telehealth; Research and Evaluation in eHealth (MSc only)*; The Use and Evaluation of Digital Data Analysis and Collection Tools; User-Centred Design in eHealth; Agent-Based Systems; Analysis and Collection Tools; Introduction to Vision and Robotics; Advanced Vision.* (We recommend you take *Introduction to Vision and Robotics* first, or simultaneously, or have some previous image processing experience).

NOTE: Courses are reviewed annually and may not run in each academic year. Please check online for the updated Degree Programme Table (DPT) before you apply.

Career opportunities
This programme is intended for professionals wishing to develop an awareness of applications and implications of data intensive systems. Our aim is to enhance existing career paths with an additional dimension in data science, through new technological skills and/or better ability to engage with data in target domains of application.

Entry requirements
A UK 2:1 honours degree, or its international equivalent (**www.ed.ac.uk/international/graduate-entry**), or a medical degree (MBChB or equivalent). Relevant work experience may be considered. Please contact us to check whether your experience will be considered. You may be admitted to certificate level only in the first instance.

English language requirements
See page 24.

Fees and funding
For fees see page 24 and for funding information see page 26.

More information: **www.epcc.ed.ac.uk/msc/fees-funding**

Programme contact Fraser Pullar
Tel +44 (0)131 651 7890
Email datascience@ed.ac.uk

"The Data Science, Technology & Innovation postgraduate programmes build on Edinburgh's strength in data science, interdisciplinarity and innovation. They offer a unique combination of technical depth, applicable skills and exploitable knowledge. These online learning programmes are accessible to a wide range of backgrounds. Offered part-time, intermittent, they are an excellent route to re-skilling or upskilling."

Professor David Robertson,
Head of the College of Science & Engineering

The Informatics Forum

The University is piloting PhDs by online learning. If you're interested in studying with us this way, we're keen to investigate possibilities in some of our areas of research.

Research at the School of Informatics

In the last Research Excellence Framework we were ranked first in the UK for research power in computer science and informatics (*Research Fortnight* REF 2014) with 85 per cent of our research rated 4* world leading or 3* internationally excellent on the overall quality profile. We hope the research you undertake will become part of our future contribution.

The research areas we offer reflect our leadership in the field. Our vast research portfolio is carried out across six institutes: communities of research staff and students with access to specialist facilities and funding. The research programmes we offer follow the same institute grouping, giving you the UK's greatest choice in core and multidisciplinary areas.

Research options
The most common research programme is the three-year Doctor of Philosophy (PhD). You will embark upon original research under supervision and present the results in a written thesis and oral examination.

The Master of Philosophy (MPhil) requires at least two years of supervised research study. It would usually include taught courses in your first year of study and more independent research in your second year.

The MSc by Research is an opportunity to gain research skills by undertaking independent study related to the School's ongoing research programme, over a period of one year.

Entry requirements
A UK 2:1 honours degree, or its international equivalent (**www.ed.ac.uk/international/graduate-entry**), in an appropriate subject. Please check the specific entry requirements for your programme online before applying.

EPSRC Centres for Doctoral Training
The University won a share of a £350 million investment in UK science and engineering postgraduate training by the Engineering and Physical Sciences Research Council (EPSRC).

The School of Informatics hosts two Centres for Doctoral Training, one in Data Science and one in Pervasive Parallelism, and is also a partner in the Centre in Robotics and Autonomous Systems in collaboration with Heriot-Watt University.

These four-year (1+3) programmes combine a training year (MSc by Research) with a three-year PhD. For the latest information, see below and: **www.ed.ac.uk/informatics/cdts**

THE UNIVERSITY *of* EDINBURGH

Case study: Edinburgh's research with impact

Enabling rural communities to access high-speed broadband

As befits an institution that operates at the leading edge of technology, the University's School of Informatics recognises the importance of a fast and reliable broadband connection in this online age. In late 2007, a team of researchers from the School saw that they had the knowledge and resources necessary to make this a reality for people in remote communities, and set about creating the highly successful Tegola Wireless Community Broadband Project.

Project background

The School of Informatics team took up the challenge of deploying wireless networking in remote Scottish communities where high-speed broadband has not been available because the nearest telephone exchange is too far away. The Tegola network demonstrated the suitability of long-distance Wi-Fi technology even for areas like rural Scotland where the terrain can be difficult. To increase the stability and sustainability of the network, the resources of the School were used to develop certain engineering measures, and use of solar and wind power for self-powered masts, that would strengthen and protect the network.

Project results

The head of BT Scotland had expressed the opinion that mesh networks like Tegola were not robust; however, experience has shown otherwise. In 2011 Tegola was successfully used for emergency medical services when a lightning strike knocked out the telephones to a wider area. As a direct result of the Edinburgh team's research, some of Scotland's most remote communities are now enjoying superfast broadband for the first time. For some it's their first connection to the online world. Tegola has become a replicable model for community-driven local access network deployments in Scotland. It has also inspired research into tools, systems and techniques to aid communities in deploying and maintaining similar rural networks.

As a direct result of the Edinburgh team's research, some of Scotland's most remote communities are now enjoying superfast broadband for the first time.

See more online: www.ed.ac.uk/research/impact

Research opportunities

www.epcc.ed.ac.uk
www.ed.ac.uk/pg/855

Edinburgh Parallel Computing Centre (EPCC)

PhD 3 yrs FT

EPCC offers the opportunity to study for a PhD in topics related to high performance computing.

Research environment

Founded in 1990, EPCC is one of the leading supercomputing centres in Europe and a major provider of training in high performance computing. EPCC's expertise includes advanced research, technology transfer, commercial consultancy and the provision of supercomputer services to academia and business.

EPCC hosts the ARCHER (Advanced Research Computing High End Resource) national supercomputing service.

EPCC has a team of experienced consultants and software engineers who have a wealth of expertise in the latest technologies. Our computing research covers software for future HPC systems, modelling and simulation, performance characterisation and benchmarking, and developing a pan-European HPC service.

We are working on several big data research projects, ranging from earthquake prediction and astronomical data analysis to the development of international data infrastructure for managing today's immense growth in data generation.

Meanwhile, our software specialists have an impressive portfolio of projects, including many industrial applications. We remain at the forefront of the field, for example through our leadership of the UK's Software Sustainability Institute, ensuring that today's new software continues to be improved and supported in the future.

Career opportunities

Graduates from EPCC have found rewarding employment in the computing industry, universities and government organisations.

English language requirements

See page 24.

Fees and funding

For fees see page 24 and for funding information see page 26.

Specific studentships are available for PhDs in high performance computing. More information: **www.epcc.ed.ac.uk/education-training/phds-high-performance-computing**

We carry out more world leading research than any other equivalent department in the UK.

www.ed.ac.uk/postgraduate/degrees

EPSRC Centres for Doctoral Training

1+3 Programme: MSc by Research followed by PhD – 4 yrs FT

We currently have three Centres for Doctoral Training (CDTs) in **data science**, **pervasive parallelism**, and **robotics and autonomous systems**. These have been exceptionally popular and successful programmes, building on our research strengths in the School of Informatics. At the time of printing, we are currently bidding for the next round of EPSRC support for CDTs across a range of topics in informatics that will again build on our research strengths. To find out more about our current CDTs and learn about the exciting opportunities offered by our new CDTs, as they are announced, visit: **www.ed.ac.uk/informatics/cdts**

Research environment

Our existing and proposed CDTs allow you to specialise in and perform advanced research in emerging and timely topics in informatics. For example, our Data Science CDT offers research in areas such as: machine learning; artifical intelligence; databases; data management; statistics; optimization; theoretical computer science; natural language processing; speech processing; and computer vision. Our Pervasive Parallelism CDT offers research in: parallel programming; wireless and mobile networking; reasoning about interaction; models of concurrent computation; energy efficient computing; systems architecture; and performance modelling. Our Robotics CDT offers research in topics including: humanoid movement control; underwater, land and airborne autonomous vehicles; human robot interaction; bio- and neuro-robotics; and planning and decision making in multi-robot scenarios.

As a CDT student you will be supervised by one of our many world-renowned researchers. Moreover, we believe that key research insights can be gained by working across the boundaries of conventional groupings. The first year of your programme will prepare you by combining research work with coursework that develops your breadth and depth of knowledge in your chosen area, and will inform your choice of research topic.

You will have access to state-of-the-art facilities, from on-chip accelerators including GPGPUs and multicore CPUs to supercomputer scale systems. The involvement of the Edinburgh Parallel Computing Centre (EPCC), one of Europe's leading supercomputing centres, provides a globally impressive infrastructure for use in your training. Those with a robotics focus will have access to the outstanding facilities in the Edinburgh Robotarium, a national facility for research into robot interaction, supporting the research of more than 50 world-leading investigators from 17 cross-disciplinary research groups. These include: humanoid movement control; underwater, land and airborne autonomous vehicles; human robot interaction; bio- and neuro-robotics; and planning and decision making in multirobot scenarios.

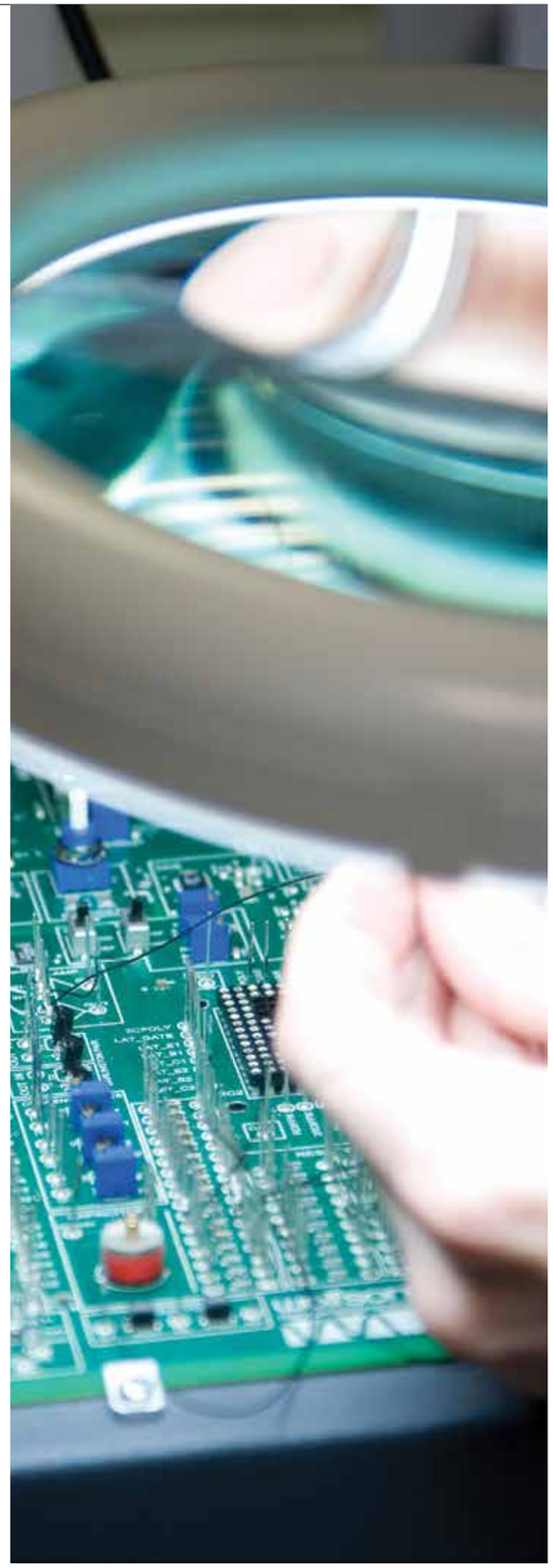
English language requirements

See page 24.

Fees and funding

We anticipate a significant number of full studentships, covering tuition fees and living costs, will be available for eligible candidates. For further information, go online: **www.ed.ac.uk/informatics/cdts**

For fees see page 24 and for funding information see page 26.



www.ed.ac.uk/pg/489

ANC: Machine Learning, Computational Neuroscience, Computational Biology

PhD 3 yrs FT (6 yrs PT available for UK/EU students)
MPhil 2 yrs FT (4 yrs PT available for UK/EU students)
MSc by Research 1 yr FT (2 yrs PT available for UK/EU students)

The Institute for Adaptive and Neural Computation (ANC) is a world-leading institute dedicated to the theoretical and empirical study of adaptive processes in both artificial and biological systems. We are one of the UK's largest and most prestigious academic teams in these fields. We foster world-class interdisciplinary and collaborative research, bringing together a range of disciplines.

Research environment
Our research falls into three areas: machine learning; computational neuroscience; and computational biology.

In machine learning we develop probabilistic methods that find patterns and structure in data, and apply them to scientific and technological problems. Applications include areas as diverse as astronomy, health sciences and computing.

In computational neuroscience and neuroinformatics we study how the brain processes information, and analyse and interpret data from neuroscientific experiments.

The focus in the computational biology area is to develop computational strategies to store, analyse and model a variety of biological data (from protein measurements and genetics to animal and human behavioural data). If you are interested in these areas you should also consider the CDT programme in Data Science (see page 12).

Career opportunities
The research you'll undertake at ANC is perfectly suited to a career in academia, where you'll be able to use your knowledge to advance this important field. Some graduates take their skills into commercial research posts and find success in creating systems that can be used in everyday applications.

Specific entry requirements
ANC researchers come from many different academic backgrounds but most of our research requires prior training in mathematics.

English language requirements
See page 24.

Fees and funding
For fees see page 24 and for funding information see page 26.

www.ed.ac.uk/pg/494

CISA: Automated Reasoning, Agents, Data Intensive Research, Knowledge Management

PhD 3 yrs FT (6 yrs PT available for UK/EU students)
MPhil 2 yrs FT (4 yrs PT available for UK/EU students)
MSc by Research 1 yr FT (2 yrs PT available for UK/EU students)

In this information age, the formalised representation of knowledge and automation of reasoning form the basis of the computerised systems that shape our world. At the Centre for Intelligent Systems and their Applications (CISA), we lead the way in research into this vital field, both in facilities and quality of research.

Research environment
You'll find a wide range of research areas within CISA, from using abstract logic and theorem-proving methods through to systems-oriented investigations. Our current research groups encompass agents and multi-agent systems, knowledge systems, mathematical reasoning, planning and activity management, and software systems and processes.

Intelligent systems are a driving force for change in areas ranging from reasoning on the web to industrial supply chain management. Aided by our links with commercial and government bodies, the research you'll undertake could shape the future of technology.

Tangible commercial links
CISA includes one of the most innovative collaborations between research and business – our Artificial Intelligence Applications Institute (AIAI). Through its resources and the engagement of staff and students in consultancy, training and joint projects, we offer solutions to commercial and government clients through the application of newly researched techniques.

Going further
While your research studies are a perfect route to a career in academia, they could also take you into the commercial world of applied intelligent systems. Software developers and the users of automated planning systems are among those who rely on the insights of our research. NASA, Hewlett Packard and animation company Pixar are just three of the organisations that have recently employed our graduates.

English language requirements
See page 24.

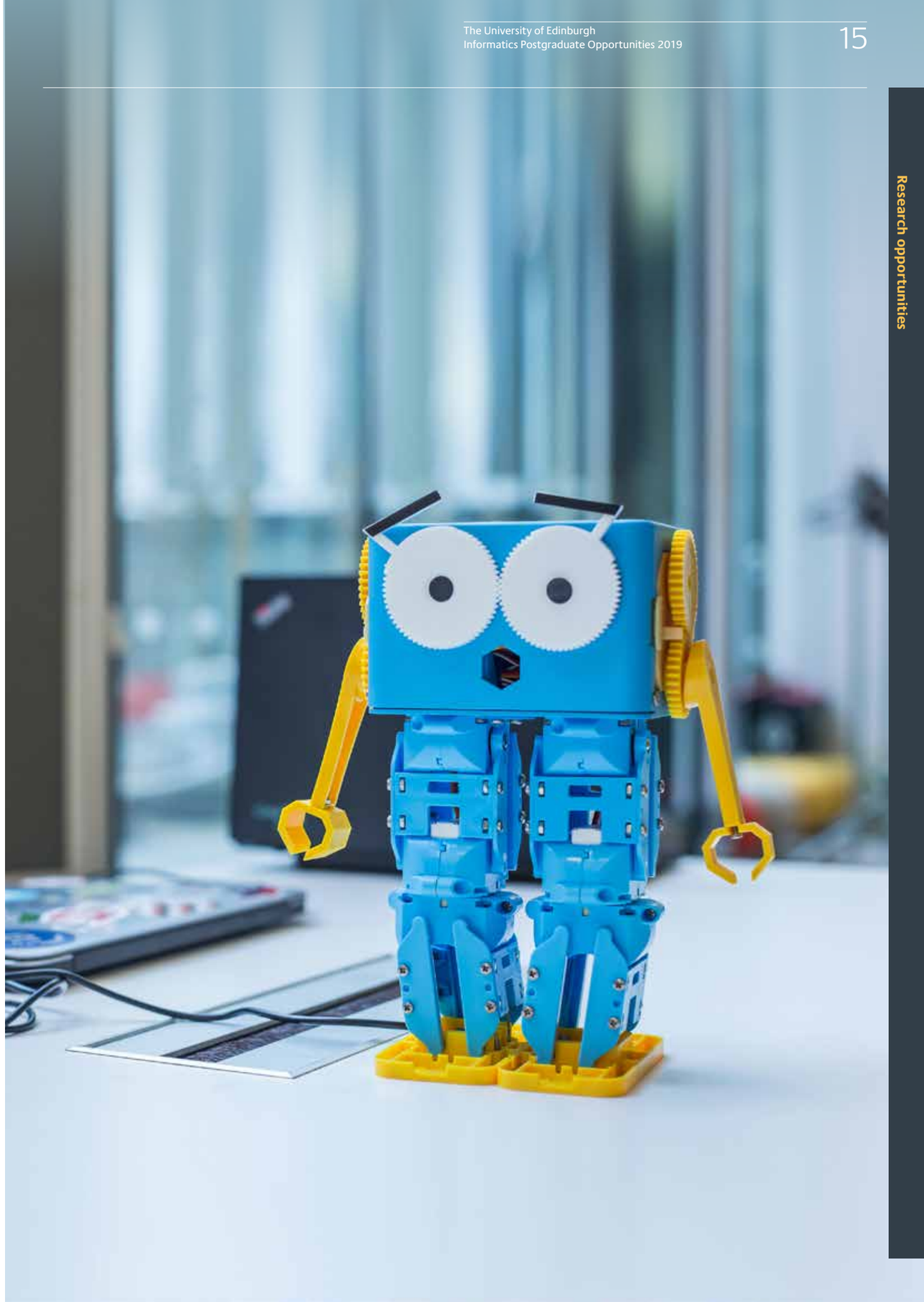
Fees and funding
For fees see page 24 and for funding information see page 26.

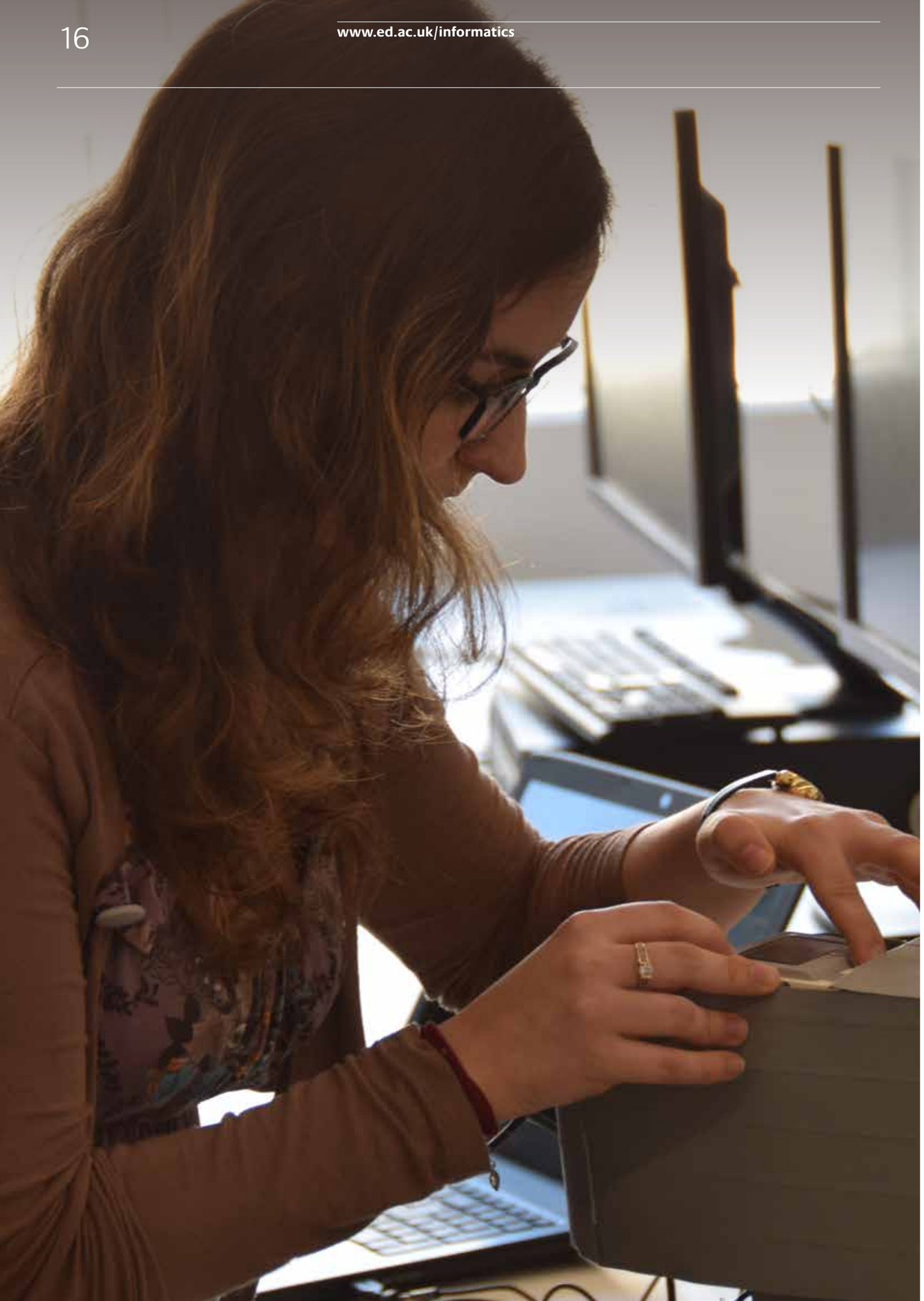
"I decided to study at Edinburgh, not just because of the research facilities offered and the University's prestige as a major educational and scientific development centre, but also because of the great atmosphere in the School of Informatics. Being in an environment that stimulates collaboration and encourages discussion is a great catalyst and a source of inspiration."
Andreea Radulescu, PhD Artificial Intelligence

See also...

You may also be interested in research areas offered by other Schools, particularly the Schools of Biological Sciences; Physics & Astronomy; or Philosophy, Psychology & Language Sciences.

www.ed.ac.uk/prospectus-request





www.ed.ac.uk/pg/492

ICSA: Computer Architecture, Compilation & Systems Software, Networks & Communication

PhD 3 yrs FT (6 yrs PT available for UK/EU students)
MPhil 2 yrs FT (4 yrs PT available for UK/EU students)
MSc by Research 1 yr FT (2 yrs PT available for UK/EU students)

The Institute for Computing System Architecture (ICSA) will provide you with academic resources and industry links that are among the best in the world. We're home to the UK's largest group of PhD researchers in the field, and host a Centre of Excellence in partnership with ARM, the world's largest microprocessor intellectual property provider. We're also a member of the European Network of Excellence on High Performance and Embedded Architecture and Compilation.

Research environment
Our students see their studies as a launch pad for their careers, and many have established themselves as world-class researchers and developers. By joining their ranks, you'll be able to make your mark on the next generation of technological innovations. Currently, research is focused on the areas of compilers and architectures, parallel computing (see also our CDT programme in Pervasive Parallelism on page 10), wireless networking and processor-automated synthesis by iterative analysis. Our wireless communication group is particularly strong, and currently working on expanding wireless reach within Scotland. While the scope for research is wide, each area is underpinned by our fundamental aims: to extend understanding of existing systems; to improve current systems; and to develop new architecture and engineering methods.

Encouraging success
You'll be supported in your research by award-winning academic staff – including four Fellows of the Royal Academy of Engineering. They and other research colleagues have contributed to an extensive publications portfolio, featuring some of the most prestigious publications in the field. You'll graduate with more than an intensive knowledge of your field: you'll also have established academic and personal links that will last a lifetime.

Career opportunities
Academic and business employers actively recruit ICSA graduates, many of whom are now designing the next generation of products for major software developers, or taking the lead in other entrepreneurial ventures.

English language requirements
See page 24.

Fees and funding
For fees see page 24 and for funding information see page 26.

www.ed.ac.uk/pg/491

ILCC: Language Processing, Speech Technology, Information Retrieval, Cognition

PhD 3 yrs FT (6 yrs PT available for UK/EU students)
MPhil 2 yrs FT (4 yrs PT available for UK/EU students)
MSc by Research 1 yr FT (2 yrs PT available for UK/EU students)

Strongly interdisciplinary in nature, the Institute for Language, Cognition and Communication (ILCC) is dedicated to both basic and applied research in the computational study of language, communication and cognition, in both humans and machines. As technology focuses increasingly on language-based communication tools, research into the automation of language processing has become vital. ILCC offers you the broadest research scope in the UK, and a strong computational focus.

Research environment
Our primary areas of research are: natural language processing and computational linguistics; spoken language processing; dialogue and multimodal interaction; information extraction, retrieval and presentation; computational theories of human cognition; and educational and assistive technology.

Much of our research is applied to software development, in areas as diverse as social media, assisted living, gaming and education.

Cross-disciplinary culture
You may find yourself working closely with other schools within the University, particularly the School of Philosophy, Psychology & Language Sciences. Many of our researchers are involved in two cross-disciplinary research centres: the Human Communication Research Centre and the Centre for Speech Technology Research.

Career opportunities
While many of our graduates pursue an academic career, others find their skills are highly sought after in the technology industry. A number of our students undertake internships with large UK and international software developers, while others take up positions with major social media companies.

English language requirements
See page 24.

Fees and funding
For fees see page 24 and for funding information see page 26.

www.ed.ac.uk/pg/495

IPAB: Robotics, Computer Vision, Computer Graphics & Animation

PhD 3 yrs FT (6 yrs PT available for UK/EU students)
MPhil 2 yrs FT (4 yrs PT available for UK/EU students)
MSc by Research 1 yr FT (2 yrs PT available for UK/EU students)

Supported by the dynamic research culture in the Institute for Perception, Action and Behaviour (IPAB), you can explore robots that learn their own motor control, mimic animal behaviours, or produce autonomous and coordinated team actions. Alternatively, you can work with systems that interpret real images and video, or generate complex behaviour in animated characters. We aim to link strong theoretical perspectives with practical hands-on construction, and provide the hardware and software support to realise this vision.

Excellent facilities

Our two large robotics labs contain a range of mobile platforms, humanoid robots and custom-built actuation systems that attract continuous interest from funders, industry and members of the public. Recent developments include the application of robotic hardware to prosthetics and assisted living, and a team that competes in the international robot soccer league. Our new Edinburgh Alliance for Robotics and Autonomous Systems (EDU-RAS) brings collaboration with Heriot-Watt University to expand the range of facilities and applications we can explore, and to fund research training. The machine vision lab has facilities for 3D range data capture, motion capture and high-resolution and high-speed video, and the high performance computing needed for graphics is well supported, including hardware partnerships with companies such as NVIDIA.

Career opportunities

While many of our graduates go on to highly successful academic careers, others find their niche in commercial research labs, putting their knowledge and skills to use in an industry setting. Several of our recent graduates have set up or joined spin-out robotics companies. Our graphics researchers have strong connections to the media and games industries, including Rockstar North.

Specific entry requirements

We expect applicants to have a degree in a computing or engineering field, with strong programming skills.

English language requirements

See page 24.

Fees and funding

For fees see page 24 and for funding information see page 26.

"I knew I wanted to do a PhD in robotics and was very happy to find that Edinburgh had a group specialising in this research, which I subsequently joined. The School of Informatics was truly inspiring and I quickly understood why it had such a renowned reputation."

Mike Mangan, PhD Robotics graduate

www.ed.ac.uk/pg/493

LFCS: Theory & Foundations of Computer Science, Databases, Software & Systems Modelling

PhD 3 yrs FT (6 yrs PT available for UK/EU students)
MPhil 2 yrs FT (4 yrs PT available for UK/EU students)
MSc by Research 1 yr FT (2 yrs PT available for UK/EU students)

Established 25 years ago, the Laboratory for Foundations of Computer Science (LFCS) continues to lead the way in the development of mathematical models, theories and tools that probe the possibilities of computation and communication. Our students benefit from being part of one of the largest and strongest groups of theoretical computer scientists in the world.

Research environment

Our research is aimed at establishing deep understanding of computation in its many forms. Using advanced mathematical principles, we create theories and software tools allowing fundamental capabilities of computation to be explored, as well as designing languages that can be used to construct safe and effective programs. Areas of interest within LFCS include verification, semantics, concurrency, process algebra, algorithms, logic and complexity.

While the results of our research can be applied to any one of a large number of diverse fields, biological modelling is of particular interest. Advances in experimental techniques mean that cell biologists need innovative tools and software to understand the vast quantities of data that are being generated. Other areas where our research is applied include computer security, database systems, software analysis, programming language design and performance analysis.

Culture of achievement

As a research student at LFCS, you'll have access to our highly respected academic staff community, which includes two Fellows of the Royal Society and a recent winner of a Blaise Pascal Medal. Our students regularly receive 'best paper' awards at conferences.

Career opportunities

Our graduates are in high demand for postdoctoral academic roles. In addition, the skills you'll graduate with can be applied to roles in industry, particularly finance, software development and consultancy.

Specific entry requirements

We expect applicants to have a strong background in mathematics, in addition to a good degree in a relevant area.

English language requirements

See page 24.

Fees and funding

For fees see page 24 and for funding information see page 26.

Developing NASA's Valkyrie robot

About the **School of Informatics**

Informatics is the study of natural and engineered computational systems. It encompasses the academic disciplines of computer science, software engineering, artificial intelligence and cognitive science.

Edinburgh's School of Informatics is the largest academic centre of its kind in Europe and the UK's most successful informatics research institution. We have consistently been a leader in the field since the 1960s, when our first Professor of Computer Science was appointed and the Department of Artificial Intelligence was founded. You will join an exciting and vibrant academic community and develop the foundations for a successful career.

In the last Research Excellence Framework we were ranked first in the UK for research power in computer science and informatics (*Research Fortnight* REF 2014) with 85 per cent of our research rated 4* world leading or 3* internationally excellent on the overall quality profile. We rank 28th for computer science in the QS World University Rankings by Subject 2018. Our size and strength support unparalleled breadth in our taught courses, which consistently rank excellent in external assessments.

Making an impact

We lead the way in an exciting discipline that is central to a new enlightenment in scholarship and learning. Informatics is critical to the development of science, technology, culture and society. As a postgraduate student you will have the opportunity to make your own mark in the area that most interests and excites you.

Inspiring people

At the School of Informatics you can join the world's brightest students in a collaborative learning environment with our distinguished staff, many of whom are world leaders. Our academics include Fellows of the Royal Society, the Royal Society of Edinburgh and the Royal Academy of Engineering. We boast recent winners of the most prestigious awards in the field, including the Herbrand Award, the Blaise Pascal Medal and the Yangtze River Scholar award.

Exciting careers

Graduates from our programmes enjoy career success in a wide array of roles that shape our society, from developing the latest mobile technology to creating intelligent infrastructure. Many go on to work as project managers, researchers, software developers and consultants in the commercial sector (at firms such as Google, Amazon, Skyscanner or Adobe) or take up academic posts, often in Russell Group and US research universities such as MIT and Stanford. Some of our graduates have found success through start-up companies.

The Informatics Forum

Facilities and resources

Our exceptional facilities have been built with the needs of innovative learning, teaching and research in mind. We provide comfortable office space and specialist research and teaching labs.

You'll be based at the University's Central Area, surrounded by lively venues, leisure facilities and parks and served well by public transport – not to mention the World Heritage attractions of one of the UK's most beautiful capital cities.

The award-winning Informatics Forum is an international research facility for computing and related areas. It houses more than 400 research staff and students, providing office, meeting and social spaces. It also contains several robotics labs, an instrumented multimedia room, eye-tracking and motion capture systems, and a full recording studio, among other research facilities. Its spectacular atrium plays host to many events, from industry showcases and student hackathons to major research conferences. Nearby state-of-the-art teaching facilities include computer and teaching labs with more than 250 machines, 24-hour access to IT facilities for students, and comprehensive support provided by dedicated computing staff.

An entrepreneurial focus

As well as academic importance, we recognise the commercial potential of our research. In recent years, we've helped to create more spin-out companies than any other UK institution (as judged by spinoutsuk.co.uk). Among our initiatives is Informatics Ventures, set up in 2008 to support globally ambitious software companies in Scotland and nurture a technology cluster to rival Boston, Pittsburgh, Kyoto and Silicon Valley.

Creative space

An exciting new venture for our School is our collaboration with Edinburgh College of Art, backed by the Scottish Funding Council. The Centre for Design Informatics allows the integration of product design with ideas from informatics. Designers work alongside informatics entrepreneurs to help build new products and services, including the next generation of social media tools.

Collections of the University

The University of Edinburgh has one of the world's great collections, which has been growing ever since its foundation in 1583. Our collections include rare books, archives and manuscripts, art, historical musical instruments and a wide range of museum objects from geological specimens to anatomical models. If laid out end to end, we would have almost 60 kilometres of shelving and storage space devoted to our heritage material, from 1st-century Greek papyrus fragments to new works of sculpture. This is curated by specialist staff across 45 sites and used for our teaching and research and by the wider public community.

The Centre for Research Collections in the Main Library is the hub for all our collections, where specialist curators make them available for study, research and pleasure. Postgraduate students are welcome to study original objects and have made many important research discoveries while working on the archives. You will find an incredible range of material in our collections that is available nowhere else in the world.

Our taught courses are consistently ranked excellent in external assessments.

Community

As a student at the School of Informatics, you'll be studying with the UK's largest group of informatics researchers, comprising almost 500 students and academic staff.

Working in such a large group of researchers and students opens up opportunities for collaboration and creative interaction. The atmosphere is one of community: we encourage students to mix and share their experiences, and many of our subject areas invite a multidisciplinary approach. For example, current research in the School includes Human Communication, Digital Curation, Health Informatics, Synthetic and Systems Biology, and Learning Energy Systems.

Since 2013 the School has held an Athena SWAN Silver Award, which recognises Informatics as a supportive environment for women in the area of Science, Technology, Engineering, Medicine and Mathematics (STEMM).

Sharing research
In addition to formal teaching, each research institute within the School regularly schedules seminars for all staff and students, where you can hear about cutting-edge research as it unfolds. Research students will also find regular opportunities to present their work in this informal and supportive environment.

Social networking
Informatics students enjoy a lively social life, and can take part in many student-organised activities. The University's computer society, CompSoc, organises events ranging from games to ice skating, and there are regular sports tournaments and tech meet-ups. There is also Hoppers, a social group for women in technology.

The Informatics Forum is a vibrant meeting point for all sorts of groups, from the formal to the very informal – you can even play table tennis in the Forum itself. There are also numerous online resources and meeting points, from the School's Facebook page to wikis and virtual cafes.

Support
The School's Student Services team offers a first point of contact to all our taught and research students for help and information to support all aspects of your student life, from admissions and funding to graduations and career opportunities.

Employability and graduate attributes

Computers continue to play a vital role in nearly every aspect of everyday living and in a diverse range of sectors – from the entertainment industry to the environment. Some of the most dynamic and lucrative opportunities are available to those who are skilled in computing, software and information systems.

All our postgraduate students have access to an excellent range of services to help you make the most of your time with us, whether you're looking to enhance your career, pursue research or start your own business.

Start-up assistance
The School of Informatics is particularly supportive of commercialisation and we have a strong track record in developing spin out companies. For those who are entrepreneurially minded, we provide training and mentoring and host special events to help our students and staff attract venture capital funding for their start-ups. Informatics Ventures is a dedicated knowledge exchange programme which aims to foster innovation and entrepreneurship through regular workshops, seminars and other events. For more information see: **www.informatics-ventures.com**

Institute for Academic Development
All postgraduate students can benefit from our Institute for Academic Development (IAD), which provides information, events and courses to develop the skills you will need throughout your studies and in the future. IAD events also offer the perfect opportunity to meet and network with other postgraduates from across the University.

Further information is available online: **www.ed.ac.uk/iad/postgraduates**

We are ranked in the top 10 in the UK and in the top 100 in the world for the employability of our graduates.

Times Higher Education
Global Employability University Ranking 2017

For taught postgraduates, IAD provides a popular study-related and transferable skills support programme. It is designed to help you settle into postgraduate life, succeed during your studies and move confidently to the next stage of your career. We offer on-campus and online workshops and one-to-one study skills consultations, plus online advice and learning materials. Workshops and learning resources cover key topics tailored to different academic stages, including: pre-arrival sessions; getting started with your studies; critical reading, writing and thinking; managing your exams; and planning for and writing up your dissertation.

IAD also provides a comprehensive programme of transferable skills training, resources and support for researchers completing a doctorate. The workshop programme is designed to help you successfully prepare for the various milestones of your PhD, from getting started with your research, to writing up and preparing for the viva, as well as developing personal and professional skills that can be transferred to your future employment. Workshops cover topics such as writing skills, reference management tools, statistics, preparing for conferences, delivering presentations, time and project management, and personal development. IAD also offers online resources and planning tools to help get your research started, plus support for tutoring and demonstrating, and research public engagement and communication.

Careers Service
Our Careers Service plays an essential part in your wider student experience at the University, offering a range of tailored careers and personal development guidance and support. We support you to recognise the wealth of possibilities ahead, while at university and after graduation, helping you explore new avenues, tap into your talents and build your employability with confidence and enthusiasm.

We provide specialist support for postgraduate students. From exploring career options to making decisions, from CV writing to interview practice, from Employ.ed internships to graduate posts and from careers fairs to postgraduate alumni events, we will help you prepare for the future.

We sustain and continually develop links with employers from all industries and employment sectors, from the world's top recruiters to small enterprises based here in Edinburgh. Our employer team provides a programme of opportunities for you to meet employers on campus and virtually, and advertises a wide range of part-time and graduate jobs.

More information:
www.ed.ac.uk/careers/postgrad

Platform One
Platform One is an online meeting place where members of the University community, past and present, can gather. It aims to provide a supportive environment where students, alumni, staff and volunteers can share knowledge and experiences. Together, we form a single community that meets on Platform One. Join us and find out more about the people and possibilities.

More information:
www.ed.ac.uk/platform-one

Backing bright ideas
LAUNCH.ed is the University's award-winning programme for student entrepreneurs. Each year, LAUNCH.ed works with hundreds of students to assess their ideas and develop their business skills and helps many start their businesses. We have helped Edinburgh students and alumni launch almost 100 new businesses in the last three years, ranging from language tuition to robotics companies.

More information:
www.LAUNCH.ed.ac.uk

Applications and fees

We have an online application process for all postgraduate programmes. It's a straightforward system with full instructions, including details of any supporting documentation you need to submit.

When applying, you will set up an account, which lets you save your application and continue at another time.

Full guidance on our application system is available at: **www.ed.ac.uk/postgraduate/applying**

General requirements

Our usual entrance requirement for postgraduate study is a UK 2:1 honours degree, or its international equivalent (**www.ed.ac.uk/international/graduate-entry**). This will typically be in an area of informatics, such as artificial intelligence, cognitive science or computer science. You may also be considered if your degree is in one of the following areas: engineering, linguistics, mathematics, philosophy, physics or psychology. You will need to have experience in computer programming.

You will need to meet the University's language requirements (see below).

Entry requirements for individual programmes can vary, so check the details for the specific programme you wish to apply for online: **www.ed.ac.uk/postgraduate/degrees**

References

For applications to taught programmes, the normal requirement is one reference, although an additional reference may be requested in individual cases. For applications to research programmes, two references are required. You should check the entry online for exact requirements for your intended programme of study. For general guidance on references, visit: **www.ed.ac.uk/postgraduate/references**

Deadlines

Taught MSc programmes

Some programmes have application deadlines. Please check the individual programme entry online for details. For all other programmes, you are encouraged to apply no later than one month prior to entry to ensure there is sufficient time to process your application. However, earlier application is recommended, particularly where there is a high demand for places or when a visa will be required. Should you wish to submit a late application, please contact us for guidance. If you are applying for funding, in most cases you will need an offer to study with us before you can make your funding application.

Research programmes

Our admissions process for research students is organised into two rounds, which are aligned with the timing of the main funding decisions. For full consideration for all PhD scholarships, including those available to international and EU students, you should apply for admission by mid-December. The second deadline is the end of March, connected to funding decisions mostly affecting UK students. It is possible for admissions decisions to be made at other times of the year, especially if you have your own or external sources of funding.

English language requirements

Students whose first language is not English must show evidence of one of the qualifications below:

Design Informatics
Advanced Design Informatics

- IELTS Academic: total 7.0 (at least 6.0 in each module).
- TOEFL-iBT: total 100 (at least 20 in each module).
- PTE(A): total 67 (at least 56 in each of the Communicative Skills sections).
- CAE and CPE: total 185 (at least 169 in each module).
- Trinity ISE: ISE III (with a pass in all four components).

All other programmes

- IELTS Academic: total 6.5 (at least 6.0 in each module).
- TOEFL-iBT: total 92 (at least 20 in each module).
- PTE(A): total 61 (at least 56 in each of the Communicative Skills sections).
- CAE and CPE: total 176 (at least 169 in each module).
- Trinity ISE: ISE II (with distinctions in all four components).

Please note:

- English language requirements can be affected by government policy so please ensure you visit our degree finder to check the latest requirements for your programme: **www.ed.ac.uk/postgraduate/degrees**
- Your English language certificate must be no more than two years old at the beginning of your programme.
- We also accept recent degree-level study that was taught and assessed in English in a majority English-speaking country (as defined by UK Visas & Immigration).
- We do not require you to take an English language test before you apply.

Abbreviations: IELTS – International English Language Testing System; TOEFL-iBT – Test of English as a Foreign Language Internet-Based Test; PTE(A) – Pearson Test of English (Academic); CPE – Certificate of Proficiency in English; CAE – Certificate in Advanced English; Trinity ISE – Integrated Skills in English.

www.ed.ac.uk/english-requirements/pg

Tuition fees

The following table provides an overview of indicative fee levels for programmes commencing in 2019.

Please note:

- International students starting full-time taught programmes of study lasting more than one year will be charged a fixed annual fee.
- All other students on full-time and part-time programmes of study lasting more than one year should be aware that annual tuition fees are subject to revision and are typically increased by approximately five per cent per annum. This annual increase should be taken into account when you are applying for a programme.
- In addition to tuition fees, your programme may be subject to an application fee and additional costs/programme costs may apply. Please check the latest programme information online.

Asylum seeker tuition fee status and scholarship

Information for applicants seeking asylum from within the United Kingdom, who wish to commence a programme of study at the University in 2019, is available online. This includes our tuition fee rates and scholarship opportunities: **www.ed.ac.uk/student-funding/asylum**

Tuition fees for EU students

EU students enrolling in the 2019/20 academic year will be admitted as Scottish/EU fee status students. Taught masters students will be eligible for the same tuition support as Scottish domiciled students from the Student Awards Agency Scotland (SAAS).

For UK/EU students

	Annual fee
Advanced Design Informatics 1-year FT	£11,500
High Performance Computing 1-year FT	£12,300
All other taught programmes 1-year FT	£13,800
All other taught programmes 2-years PT	£6,900
All other taught programmes 3-years PT	£4,600
All other MSc by Research 1-year FT	£8,300
All other MSc by Research 2-years PT	£4,150
MPhil/PhD programmes FT	£4,260*
MPhil/PhD programmes PT	£2,130*

For international students

	Annual fee
Advanced Design Informatics 1-year FT	£22,600
High Performance Computing 1-year FT	£26,600
All other taught programmes 1-year FT	£30,700
All other MSc by Research 1-year FT	£26,600
MPhil/PhD programmes FT	£22,200

* Figure shown is the 2018/19 fee level

All other fees quoted are indicative of 2019/20 fee levels. Because these figures are indicative, it is important you check online before you apply and check the up-to-date fee level that will apply to your specific programme: **www.ed.ac.uk/student-funding/tuition-fees/postgraduate**

Funding

A large number of scholarships, loans and other funding schemes are available for your postgraduate studies. It is only possible to show a small selection in print. To see the full range, please visit: **www.ed.ac.uk/student-funding/postgraduate**

Awards are offered by the School of Informatics, the College of Science & Engineering, the University of Edinburgh, the Scottish, UK and international governments and many funding bodies.

Here we list a selection of potential sources of financial support for postgraduate students applying to the School of Informatics. This list was correct at the time of printing but please check the full and up to date range online (see above).

Tuition fee discounts

We offer a 10 per cent discount on postgraduate fees for all alumni who have graduated with an undergraduate degree from the University. We also offer a 10 per cent discount for international graduates who spent at least one semester at the University of Edinburgh as a visiting undergraduate: **www.ed.ac.uk/student-funding/discounts**

Key
- ● Taught masters programmes
- ● Masters by Research programmes
- ● Research programmes

Scholarships at the University of Edinburgh

- **Beit Trust** ● ●
  Beit Trust and the University of Edinburgh Scholarships jointly fund postgraduate students from Malawi, Zambia and Zimbabwe to undertake a masters: **www.beittrust.org.uk**
- **Edinburgh Global Masters Scholarships** ● ●
  A number of scholarships are available to international students for masters study: **www.ed.ac.uk/student-funding/masters**
- **Edinburgh Global Research Scholarships** ●
  These scholarships are designed to attract high-quality international research students to the University: **www.ed.ac.uk/student-funding/global-research**
- **Edinburgh Principal's Career Development Scholarships** ●
  A number of scholarships, open to UK, EU and international PhD students: **www.ed.ac.uk/student-funding/development**
- **Enlightenment Scholarships** ●
  The University is currently developing a new style of PhD scholarship to attract the best PhD applicants from around the world. These scholarships will provide funding for up to four years. For the latest information, and for details on which Schools will be participating, please check: **www.ed.ac.uk/student-funding/enlightenment**
- **EPSRC Centre for Doctoral Training Studentships** ● ● ●
  Combined MSc/PhD programmes in our EPSRC Centres for Doctoral Training offer a number of fully-funded places for eligible students: **www.ed.ac.uk/informatics/research-scholarships**
- **Google European Doctoral Fellowship** ●
  Google runs an international competition for these scholarships. Successful applicants receive full tuition fees, a stipend and research expenses: **https://ai.google/research/outreach**
- **John Fisher HPC Masters Scholarships** ●
  EPCC offers a minimum of two scholarships for MSc High Performance Computing/High Performance Computing with Data Science, open to all nationalities. Each scholarship has a value equivalent to half of your fees for one academic year: **www.ed.ac.uk/student-funding/masters-hpc**
- **Julius Nyerere Masters Scholarships (Tanzania)** ● ●
  One scholarship is available to citizens of Tanzania who are normally resident in Tanzania who are accepted on a full-time masters programme: **www.ed.ac.uk/student-funding/nyerere**
- **Microsoft Research European PhD Scholarships** ●
  Microsoft Research runs an international competition for these scholarships, which are available to students from Europe, the Middle East and Africa: **http://research.microsoft.com/en-us/collaboration/global/apply-europe.aspx**
- **School of Informatics Masters Scholarships** ●
  A number of scholarships are available for masters study to students who are accepted for admission on a full-time eligible programme: **www.ed.ac.uk/informatics/msc-scholarship**
- **School of Informatics Scholarships** ● ●
  A number of scholarships available each year to new postgraduate researchers: **www.ed.ac.uk/student-funding/informatics/phd-funding**

Research council awards

Research councils offer awards to masters and PhD students in most of the Schools within the University of Edinburgh. All studentship applications to the research councils must be made through the University, through your School or College office. Awards can be made for both taught and research programmes.

Normally only those UK/EU students who have been resident in the UK for the preceding three years are eligible for a full award. For some awards, candidates who are EU nationals and are resident in the UK may be eligible for a fees-only award. The UK Government has confirmed that EU postgraduate research students commencing their studies in 2019/20 will retain their fee status and eligibility for research council support for the duration of their programme: **www.ed.ac.uk/student-funding/research-councils**

The University also offers a number of scholarships in partnership with the following overseas government agencies:

- **Chile** ● ● ●
  National Commission for Scientific and Technological Research (CONICYT): **www.conicyt.cl**
- **Colombia** ●
  Administrative Department of Science, Technology and Innovation (Colciencias): **www.colciencias.gov.co**
- **Ecuador** ● ● ●
  Secretaria Nacional de Educacion Superior, Ciencia y Tecnologia (SENESCYT): **www.educacionsuperior.gob.ec**
- **Iraq** ●
  Ministry of Higher Education and Scientific Research: **www.iraqiculturalattache.org.uk**
- **Mexico**
  National Council of Science and Technology of the United Mexican States (CONACYT): ● ● ●
  www.conacyt.mx

  Banco de Mexico and the Banco de Mexico's FIDERH trust (FIDERH): ● ● ●
  www.fiderh.org.mx

  Fundacion Mexicana para la Educacion, la Tecnologia y la Ciencia (FUNED): ● ●
  www.funedmx.org
- **Pakistan** ●
  Higher Education Commission, Pakistan (HEC): **www.hec.gov.pk**

Loans available for study at the University of Edinburgh

The University of Edinburgh is a participating institution in the following loans programmes, meaning we certify your student status and can help with the application process.

- **The Canada Student Loans Program** ● ● ●
  The University is eligible to certify Canadian student loan applications: **www.ed.ac.uk/student-funding/canadian-loans**
- **Erasmus+** ●
  The Erasmus+ Master Loan helps masters students with their living and tuition costs when studying in an Erasmus+ country other than where they live or where they took their first degree. For more information: **https://erasmusplus.org.uk/master-loan**
- **Postgraduate Doctoral Loans England** ●
  Student Finance England offers postgraduate loans for doctoral study, payable to eligible students and divided equally across each year of the doctoral programme: **www.gov.uk/doctoral-loan/eligibility**
- **Postgraduate Doctoral Loans Wales** ●
  Student Finance Wales offers loans for postgraduate doctoral study, payable to eligible students, divided equally across each year of the doctoral programme: **www.studentfinancewales.co.uk/postgraduate-students/postgraduate-doctoral-loan.aspx**
- **Postgraduate Loans (PGL) England** ● ●
  Student Finance England offers postgraduate loans for taught and research masters programmes, payable to eligible students: **www.gov.uk/postgraduate-loan**
- **Postgraduate Loans (PGL) Northern Ireland** ● ●
  Student Finance Northern Ireland offers a tuition fee loan for taught and research programmes, at certificate-, diploma-, and masters-level, which will be paid directly to the University: **www.studentfinanceni.co.uk**
- **Postgraduate Loans (SAAS) Scotland and EU** ● ●
  The Student Awards Agency Scotland offers tuition fee loans for taught diploma and masters programmes which will be paid directly to the University. Full-time students resident in Scotland can also apply for a non-income assessed living cost loan: **www.saas.gov.uk**
- **Postgraduate Loans (PGL) Wales** ● ●
  Student Finance Wales offers eligible students postgraduate loans for taught and research masters programmes: **www.studentfinancewales.co.uk**
- **US Student Loans** ● ● ●
  The University is eligible to certify loan applications for US loan students. Full details on eligibility and how to apply can be found online: **www.ed.ac.uk/student-funding/us-loans**

Other sources of funding

The following are examples of the many scholarships and support schemes available to students from particular countries who meet certain eligibility criteria.

- **Chevening Scholarships** ● ●
  A number of partial and full funding scholarships are available to one-year masters students: **www.chevening.org**
- **Commonwealth Scholarships** ● ● ●
  Scholarships available to students who are resident in any Commonwealth country, other than the UK: **www.dfid.gov.uk/cscuk**
- **Marshall Scholarships (USA)** ● ● ●
  Scholarships available to outstanding US students wishing to study at any UK university for at least two years: **www.marshallscholarship.org**
- **Scotland's Saltire Scholarships** ● ●
  A number of scholarships open to students who are citizens permanently and ordinarily resident in Canada, China, India, Japan, Pakistan and the USA for one year of masters study: **www.ed.ac.uk/student-funding/saltire**

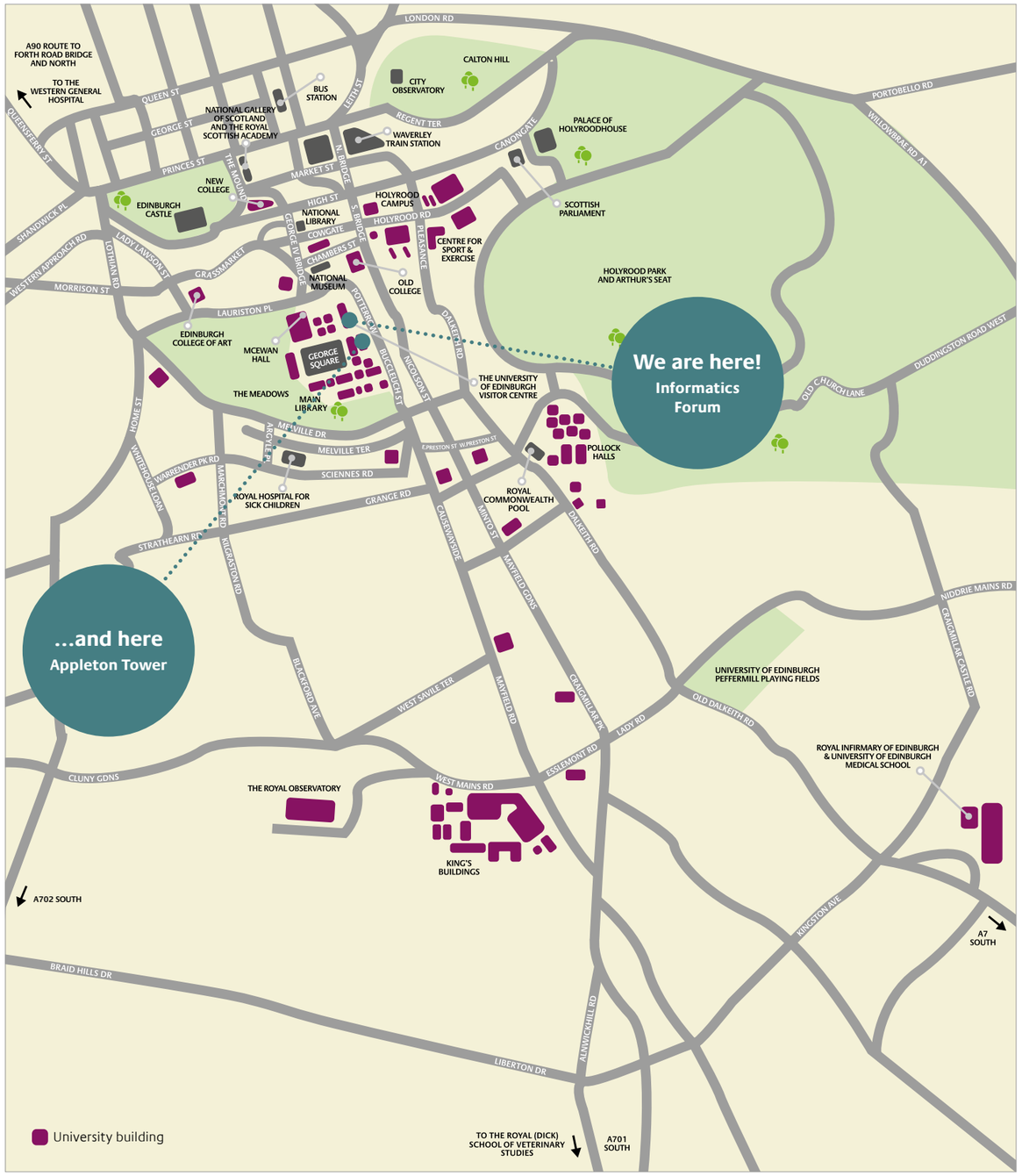
"The Scottish Government's initiative to attract international students through the Saltire Scholarship Scheme, as well as the University's support for international students, has helped provide me with an opportunity that I would never have conceived of prior to starting my studies at Edinburgh."

Robert Starr, MSc High Performance Computing, Scotland's Saltire Scholarship

Campus map

Informatics teaching, learning and research takes place in two buildings based at the University's Central Area, a stone's throw from city attractions and University amenities, such as the Main Library and the Centre for Sport and Exercise.

Detailed maps can be found at: www.ed.ac.uk/maps



The Informatics Forum

Get in touch

Contact us

Visit: **www.ed.ac.uk/informatics/postgraduate**

For more information about taught MSc programmes, please contact the Informatics Teaching Organisation:

Tel +44 (0)131 650 5194
Email ito@inf.ed.ac.uk

For more information about our research programmes, including PhDs, please contact our Graduate School:

Tel +44 (0)131 650 3091
Email phd-admissions@inf.ed.ac.uk

To discuss your research proposal, you'll find details of potential supervisors at: **www.ed.ac.uk/informatics/directory**

Visit us

The University's Postgraduate Open Day is your opportunity to come and meet current staff and students. Our next campus-based Open Day takes place on 14 November 2018. For more information, visit: **www.ed.ac.uk/postgraduate-open-day**

Visit our School and explore our facilities online at: **www.ed.ac.uk/informatics/images-videos**

Our visits to you

If you are unable to visit the University, we attend events throughout the year so you can meet and speak to us in person.

UK and Europe: **www.ed.ac.uk/postgraduate//uk-and-european-events**

International: **www.ed.ac.uk/international/our-visits-overseas**

Chat online

We offer all postgraduate students monthly online information sessions. To find out more and see when the next session will be: **www.ed.ac.uk/postgraduate/online-events**

For international students, Edinburgh Global runs two online chat sessions each month. These are timed to give students in all timezones a chance to get involved. You can find out more and register online: **www.ed.ac.uk/international/chat-to-us-online**

Drawn to
EDINBURGH
by our world-class university

You are in good company. More than 39,500 of the world's brightest minds study here. Learn more at www.ed.ac.uk

Illustration by:
Katy Wiedemann, MA Illustration

The front cover shows Valkyrie, one of the world's most advanced humanoid robots. The American National Aeronautics & Space Administration (NASA) designed and built three prototypes for future missions to Mars. This is the only one in Europe. Researchers at Edinburgh Centre for Robotics are enhancing Valkyrie's handling and walking capabilities, developing its sophisticated on-board sensors to better interpret its environment, and improving its manoeuvrability and ability to interact closely and safely with humans and other machines.

#drawntoedinburgh

This publication is available online at **www.ed.ac.uk/postgraduate** and can be made available in alternative formats on request. Please contact communications.office@ed.ac.uk or call +44 (0)131 650 2252.

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We have made every effort to ensure the accuracy of the information in this prospectus before going to print. However please check online for the most up-to-date information: **www.ed.ac.uk**

On 23 June 2016 the UK electorate voted in a national referendum to leave the European Union. At the time of going to print, there was no immediate, material change known that would impact on applicants for 2019 entry. However we recommend that you check online for the latest information before you apply: **www.ed.ac.uk/news/eu**

The University's standard terms and conditions will form an essential part of any contract between the University of Edinburgh and any student offered a place here. Our full terms and conditions are available online: **www.ed.ac.uk/student-recruitment/terms-conditions**

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