UNIVERSITY OF
Southampton

DECODING THE FUTURE

FOUNDING
MEMBER OF THE
**RUSSELL
GROUP**

CHOOSE SOUTHAMPTON

Top 100
global university*

Top 20
UK university**

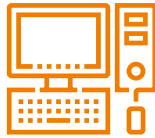## Top 10
in the UK for
research intensity***

100%
of our Computer
Science and IT
research has been
rated world-leading
or internationally
excellent for its impact
on society***

We hold the 1st and only
Regius Professorship in
Computer Science

We are a University
Partner of
**The Alan
Turing
Institute,**
the UK's national
institute for data science
and artificial intelligence

* QS World University Rankings, 2020 ** Complete University Guide, 2020 *** Latest REF, 2014

"As soon as the classes
started, I was thrilled by the
level of the lectures. It was
hard at first since it was a
big change from the way I'm
used to studying back in my
country, but the university
has lots of resources aimed
at helping people improve
in this area."

Claudia Subia
MSc Data Science, 2019

RESEARCH EXCELLENCE

We are proud of our world-leading research groups and centres that have been constantly evolving in response to new technology and new methods. They enable us to combine research expertise across Electronics and Computer Science. All postgraduate students will be linked to one of our research groups, currently:

- Agents, Interaction and Complexity
- Biomedical Electronics
- Centre for Health Technologies
- Centre for IoT and Pervasive Systems
- Centre for Machine Intelligence
- Cyber Physical Systems
- Cyber Security

- Electrical Power Engineering
- Next Generation Wireless
- Smart Electronic Materials and Systems
- Sustainable Electronic Technologies
- The IT Innovation Centre
- Vision, Learning and Control
- Web and Internet Science

Find out more about our research groups:
www.southampton.ac.uk/ecs-research-groups

We are recognised as an **Academic Centre of Excellence** in Cyber Security Research by the UK Government

Our supercomputer, **Idris 5**, is capable of performing over a **quadrillion calculations** per second

We collaborate with major companies such as **Arm**, **Imagination Technologies**, **IBM**, and **JP Morgan** to help give you the edge in today's global careers market

100% of employed MSc graduates in Electronics and Computer Science are in professional or managerial roles within six months of graduation*

Our researchers are **developing pioneering approaches** to embed machine learning in electronic devices as part of a £1.2m international Centre for Spatial Computational Learning***

100% of our Computer Science research impact is recognised as world-leading or internationally excellent**

1 Our on-campus startup accelerator, Future Worlds, helps aspiring student entrepreneurs change the world with their ideas.
2 Multi-million pound computing laboratory for individual and project work
*   Latest Destinations of Leavers from Higher Education survey, 2016/17
** Research Excellence Framework (REF) 2014
*** The Centre is funded by the EPSRC and partners include Imperial College, the University of Toronto and the University of California, Los Angeles (UCLA).

MSc PROGRAMMES

Key facts

Unless otherwise stated

Entry requirements: a UK bachelor's degree with upper second-class honours or higher in computer science, or a closely related subject. See the specific entry criteria online for each programme. See international equivalent qualifications **www.southampton.ac.uk/pg/entry**

English language: band C, IELTS 6.5 overall, with a minimum of 6.0 in all components. For more information, visit **www.southampton.ac.uk/pg/el**

Assessment: coursework, examinations, written project (design, development or research) and dissertation

Duration: one year (full time)

Start date: September

Applying: University application form with transcripts and two references

Closing date: closed when full, usually May onwards

Fees and funding: www.southampton.ac.uk/pg/fees

Electronics and Computer Science (ECS) is unique in the UK in its integration of electronics and computer science, its distinguished record of research success and the scale of its research activities. We have a thriving graduate school, with a strong emphasis on providing you with the best possible research training and future opportunities.

As a postgraduate student, you will work with internationally respected academics at the forefront of their disciplines, tackling some of today's biggest challenges.

Our excellent facilities, key partnerships with major industries and a world-leading research base will ensure that your time studying with us will be productive, challenging and enjoyable.

All our taught degrees are one-year Master of Science (MSc) programmes. They consist of two semesters of taught modules followed by an individual research project during the summer. The taught modules in the first semester are usually compulsory for the particular MSc stream, while the second semester allows you to select a wide range of optional modules across the spectrum. During the summer project you will work under the supervision of an academic member of staff towards your dissertation.

MSc Artificial Intelligence

Programme Director:
Dr Richard Watson

This research-led MSc takes a contemporary approach and covers the fundamentals of traditional symbolic and sub-symbolic aspects. On this programme, you will learn from world-class researchers working in AI fields such as computer vision, evolutionary computing, intelligent agents, game theory, deep learning and other machine learning methods. You will develop core data analysis skills and explore both traditional and state-of-the-art aspects of artificial intelligence and machine learning.

Programme structure

Compulsory modules include:
Foundations of Artificial Intelligence; Intelligent Agents; Machine Learning; MSc Research Project and Dissertation, Project Preparation

Optional modules include:
Advanced Machine Learning; Algorithmic Game Theory; Biologically Inspired Robotics; Computational Finance; Data Mining; Deep Learning; Evolution of Complexity; Image Processing; Reinforcement and Online Learning

Find out more:
www.southampton.ac.uk/ecs/msc
Or to have specific questions answered:
T: +44 (0)23 8059 9699
E: enquiry@southampton.ac.uk

MSc PROGRAMMES

MSc Computer Science

Programme Director:
Dr George Konstantinidis

Computer science drives the fundamental technologies of today's connected world. This wide-ranging programme allows you to cover the foundations of a number of specialist areas, such as Artificial Intelligence, Cyber Security, Data Science, Software Engineering, and Web Technology. You can then choose from around 30 specialist modules to deepen your understanding of one or more of these areas. This MSc is ideally suited if you have significant programming experience.

Programme structure

Compulsory modules include:
Topics in Computer Science; MSc Research Project and Dissertation; Project Preparation

Optional modules include:
Advanced Databases; Algorithmic Game Theory; Biologically Inspired Robotics; Computational Finance; Computer Vision; Data Mining; Deep Learning; Designing Usable and Accessible Technologies; E-Business Strategy; Foundations of Artificial Intelligence; Foundations of Cyber Security; Foundations of Data Science; Intelligent Agents; Machine Learning; Mobile Applications Development; Network and Web Based Security; Open Data Innovation; Reinforcement and Online Learning; Semantic Web Technologies; Software Modelling Tools and Techniques for Critical Systems; Software Project Management and Secure Development; Software Security

MSc Cyber Security

Programme Director:
Dr Julian Rathke

Cyber security is critically important to commercial and academic organisations, as well as to governments and their citizens. Our MSc gives you a well-rounded, multidisciplinary view of the subject area, embracing not only the technical subjects, but also aspects of criminology, risk management, law and social sciences. The programme has National Cyber Security Centre certification and we are recognised as an Academic Centre of Excellence in Cyber Security Research by the UK government.

Programme structure

Compulsory modules include:
Cryptography; Cyber Crime, Insecurity and the Dark Web; Foundations of Cyber Security; Network and Web Based Security; Security of Cyber Physical Systems; Software Security; MSc Research Project and Dissertation; Project Preparation

Optional modules include: Criminal Behaviour – Applied Perspectives; Software Project Management and Secure Development

MSc Data Science

Programme Director:
Dr Adriane Chapman

This programme prepares you to become a proficient data scientist, developing your specialist knowledge in subjects that are crucial for mastering the vast and ever-more complex information landscape that is characteristic of modern, digitally empowered organisations. You will gain advanced knowledge in areas such as data mining, machine learning, and data visualisation, including state of the art techniques, programming toolkit, and industrial and societal application scenarios.

Programme structure

Compulsory modules include:
Data Visualisation; Foundations of Data Science; Machine Learning; MSc Research Project and Dissertation; Project Preparation

Optional modules include:
Advanced Machine Learning; Advanced Topics in Human-Systems Interaction; Algorithmic Game Theory; Computational Finance; Data Mining; Deep Learning; Reinforcement and Online Learning; Open Data Innovation; Semantic Web Technologies

MSc PROGRAMMES

MSc Internet of Things

Programme Director:
Dr Basel Halak

Combining elements of computer science and electronics, the MSc Internet of Things (IoT) is designed for graduates from either discipline. It covers the theoretical knowledge and practical skills you'll need to develop and engineer the next generation of IoT devices and systems. You'll also have the flexibility to explore specialist IoT topics that interest you through a choice of optional modules. You'll learn from researchers who are advancing IoT technologies for applications as varied as smart homes and cities, environmental monitoring, healthcare, and disaster relief.

Programme structure

Compulsory modules include:
MSc Project; Project Preparation; Secure Hardware and Embedded Devices; Foundations of Embedded IoT Systems; IoT Networks

Optional modules include:
Biometrics; Open Data Innovation; Mobile Applications Development; Biologically Inspired Robotics; Embedded Processors; Cryptography; Machine Learning for Wireless Communications

MSc Software Engineering

Programme Director:
Dr Corina Cirstea

This programme covers traditional and contemporary approaches to software development, from formal methods to object-oriented programming. It covers state-of-the-art techniques, technologies, and supporting tools, and will expose you to their applications in meeting emerging business and social needs, and solving challenging problems. You will study with experts in subjects such as critical systems, cryptography, cyber security, e-business, and web technologies.

Programme structure

Compulsory modules include:
Automated Software Verification; Software Modelling Tools and Techniques for Critical Systems; Software Project Management and Secure Development; MSc Research Project and Dissertation; Project Preparation

Optional modules include:
Advanced Topics in Human-Systems Interaction; Automated Code Generation; Cryptography; Designing Usable and Accessible Technologies; E-Business Strategy; Mobile Applications Development; Open Data Innovation; Software Security; Web Development
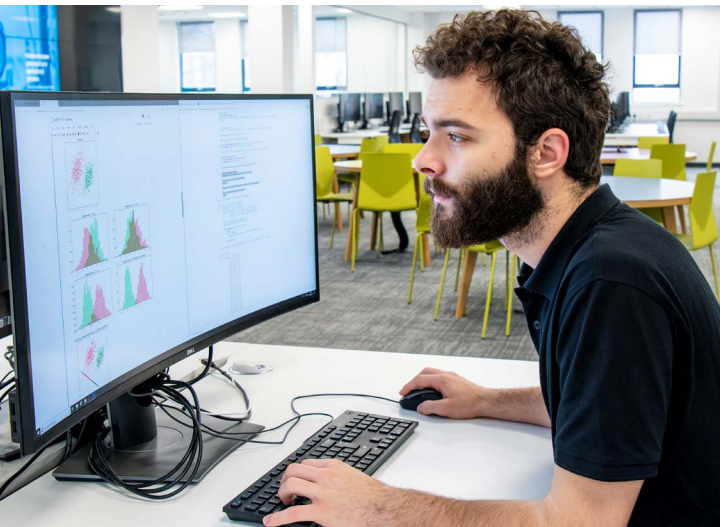
"What I enjoy most about my course is the fact that I have been able to choose my modules and shape my course as I wanted it. I have gone down an AI path and selected many Machine Learning and Artificial Intelligence modules."

Sebastian Gherhes
MSc Computer Science, 2019

GLOBAL IMPACT

Research within Electronics and Computer Science has been making a life-changing impact on society for more than 50 years; many of the major developments in today's technology have come as a result of our innovation.

Our world-leading research teams tackle some of the biggest challenges facing modern society and the results of our work transform the lives of people worldwide, every day. Our innovations translate into practical and financially viable solutions that create jobs, boost the economy and enhance quality of life.

Pioneering ECS researchers work at the forefront of knowledge, attracting investment and sponsorship from both government and global industry, including current (2018) grant awards of £38m from the Engineering and Physical Sciences Research Council (EPSRC).

We collaborate with some of the world's biggest organisations, influencing strategy, informing government policy and revolutionising manufacturing processes. Our Future Worlds' incubator identifies and supports opportunities for spin-outs and start-ups that capitalise on cutting-edge research and our alumni work in leading academic and industry roles worldwide.

WE ARE:

1st

We hold the first and only Regius Professorship in Computer Science

the birthplace of the technology that **underpins the Internet** and a pioneer in web science

using **unique sensor probes** to monitor the real-time behaviour of glaciers, to understand the link between their retreat, global warming and rising sea levels

at the forefront of research on 'social machines' and are pioneering methods to capture, store, analyse and visualise large-scale, complex and diverse data in the Southampton Web Observatory

HOW DO I APPLY?

Before applying for postgraduate taught study, you should:

– check you meet the entry requirements

– if applicable, ensure that you meet any special requirements for international students

– identify how you will fund your postgraduate study

– obtain supporting documentation to include as part of your application

APPLY NOW

Apply to Southampton for postgraduate taught degrees and for more information on PhD opportunities

Find out more:
www.southampton.ac.uk/pg

Find out more:

www.southampton.ac.uk/
ecs/msc

UK and EU enquiries:
enquiry@southampton.ac.uk
+44 (0) 23 8059 9699

International enquiries:
international@southampton.ac.uk
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