



UNIVERSITY OF BIRMINGHAM

SCHOOL OF
COMPUTER
SCIENCE

UNDERGRADUATE STUDY IN COMPUTER SCIENCE

CONTENTS

What is Computer Science?	4
The city of Birmingham	6
School of Computer Science	7
Why Computer Science at Birmingham?	8
Studying Computer Science at Birmingham	10
Undergraduate degrees in Computer Science	11
BSc Computer Science with Digital Technology Partnership – PwC	12
Module information	14
Artificial Intelligence explained	16
Cyber Security explained	18
Year in Industry	20
International study opportunities	21
What can you do with a degree in Computer Science?	22
Useful information	24
Money matters: scholarships, fees and funding	26
What our students say	27

LEARN MORE



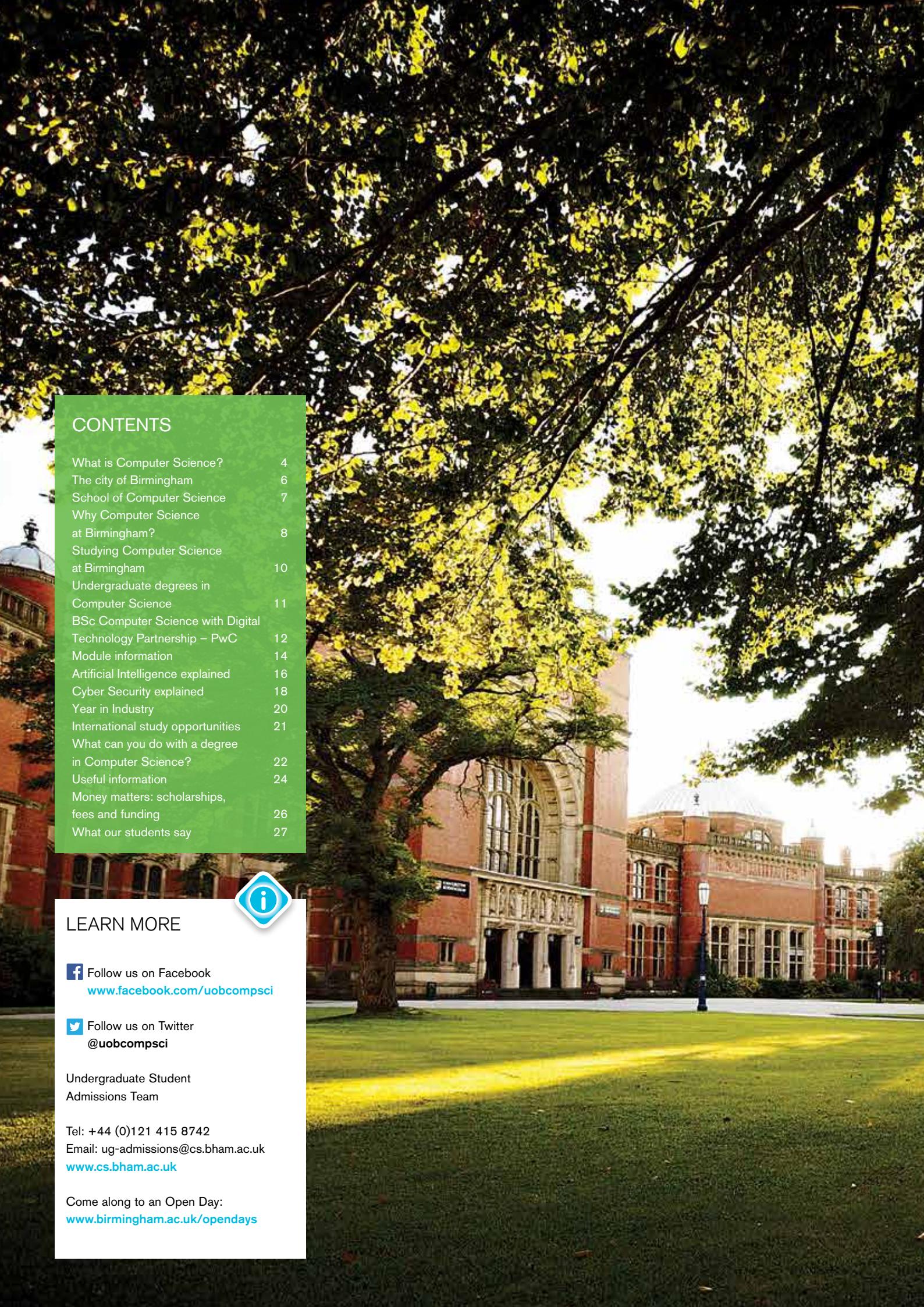
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Undergraduate Student Admissions Team

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www.cs.bham.ac.uk

Come along to an Open Day:
www.birmingham.ac.uk/opendays





Welcome

The University of Birmingham is a world-class university in a vibrant city. Founded as England's first 'civic' university over a century ago and set in a glorious campus close to the heart of the city, the University of Birmingham is now not only one of Britain's leading universities, but is internationally acclaimed and globally recognised.

I am delighted that you are considering studying at the University of Birmingham. The School of Computer Science provides specialist teaching and conducts cutting-edge research in Intelligent Systems (including Machine Learning and Robotics), Cyber Security, Theoretical Computer Science and Human-Centred Computing. Led by academics at the forefront of their fields, we deliver outstanding education and offer comprehensive careers support to ensure an exciting range of opportunities for your future.

We are eager to receive applications from highly motivated and well-qualified students and hope that this brochure will provide you with what you need to know about the variety of Computer Science degrees offered and the opportunities available to you, whilst studying with us and after you graduate. It is important that you choose a degree programme to suit your future career aspirations and that you choose a university and school where you will be happy and able to fulfil your potential. One of the best ways to make this decision is to visit the University to explore, enquire and listen to what life is really like at Birmingham. We very much hope therefore, that you will be able to attend one of our admissions events.



Our Computer Science Admissions Team are here to support you in your decision, and they help arrange a number of opportunities where you can visit and talk to us. University Open Days are scheduled throughout the year and as a Computer Science applicant, you will be invited to attend an 'Applicant Visit Day', where you can meet staff and students who will try and help you make a decision that's right for you. If you have any questions in the meantime, please do not hesitate to get in touch and we will do all that we can to help.

I wish you every success with your studies and hope to welcome you to Birmingham in the near future.

Professor Andrew Howes
Head of School
Computer Science

What is Computer Science?

Computers are a core part of our lives: social networking, media streaming, security, computer games, office applications and online shopping are all obvious examples of things that computer science has brought us that many people are very familiar with.

At its most fundamental level, computer science is about information: how to represent, store, communicate, manipulate, understand and make use of it. Computer science is also at the heart of 21st-century commerce and industry, with almost every business using computers in some way. Large businesses will often devote a substantial proportion of their operating budget to the development of computer systems that aid in the management of the company; for example, by keeping track of stock levels or managing delivery schedules.

Computational Thinking

Information is a tremendously valuable commodity, and there is a vast industry dedicated to making sense of it: from generating adverts specific to your interests on social networking sites, to identifying trends in financial markets. The role of the computer scientist in this process is not just about writing computer programs to perform a particular task (although this can be a significant part of what computer scientists do), it is about developing new ways of thinking about information, and what you can do with it. This can have a profound impact on other areas of science and engineering, and also on humanities, social sciences and business.

Thinking about problems from a computational perspective is leading to fundamental new insights in other areas and allows us to:

- Extract the crucial features from very large datasets such as those generated in the search for gravitational waves
- Develop new drugs for cancer
- Understand how the brain works, through the analysis of artificial neural networks, and by drawing on our knowledge of information processing to formulate computational theories of mind

- Analyse data from social networks and mobile systems in order to understand the movements and motivations of people
- Model and analyse business processes to understand how to improve the efficiency of a company's operations
- Identify and fix security flaws in computational systems from travel cards to voting systems

So, at its most fundamental level computer science is about understanding, analysing, and designing information processing systems. This is a complex multi-faceted process that can involve mathematical analysis, engineering, human factors and ethical considerations.

A Computer Science degree could lead to a tremendous variety of careers: you could be helping to develop the next generation of social networks; writing a sophisticated motor racing game (or even a Formula 1 simulator); working out the structure of proteins; developing software for financial trading; predicting the weather and modelling the effect of brain injuries, amongst many other possibilities.

The proliferation of information, and the pressing need and desire to understand it will only lead to an increase in the demand for skilled computer scientists to develop new ways of thinking.



'Computer Science is the study of computational systems and their applications. Fundamental to this is the study of information, and how to understand, represent, and manipulate information mechanistically and automatically.'

'This broad definition admits a wide range of academically challenging and industrially relevant topics, including: the transmission of information; extracting and exploiting patterns in information; building systems to manipulate information; understanding what types of computational information-processing systems are possible; enabling people to interpret and interact with information; and encoding real-world problems as information then solving them algorithmically. We teach all of this at Birmingham.'

DR NICK HAWES
Reader, School of Computer Science

CASE STUDY

SARAH KEMBER

BSc Computer Science with Year in Industry

Why did you decide to study Computer Science at Birmingham?

Computer Science is such a broad subject you can take it almost anywhere, with so many different new skills and interests that you can acquire. I chose Birmingham because of everything they had to offer, from the excellence of the teaching to the range of modules that you can pick from, all of which gives you the ability to really explore the different areas that there are.

What is your experience of the School?

There is plenty of student support, which is provided through office hours, giving you an opportunity to speak to the lecturer, as well as demonstrator sessions where you get help from older students who have been through the module themselves.

There are also lots of opportunities to socialise and work with computer scientists from all years and backgrounds, which gives you the chance to learn new skills from many people, not just the standard knowledge you gain from attending the lectures.

What are you intending to do for your Year in Industry?

I am going to be working for 'Critical Software', on a software engineering placement. I'll be assisting on work on systems and software for safety, mission and business-critical applications. I'm looking forward to it!



CASE STUDY

OSSAMA EDBALI

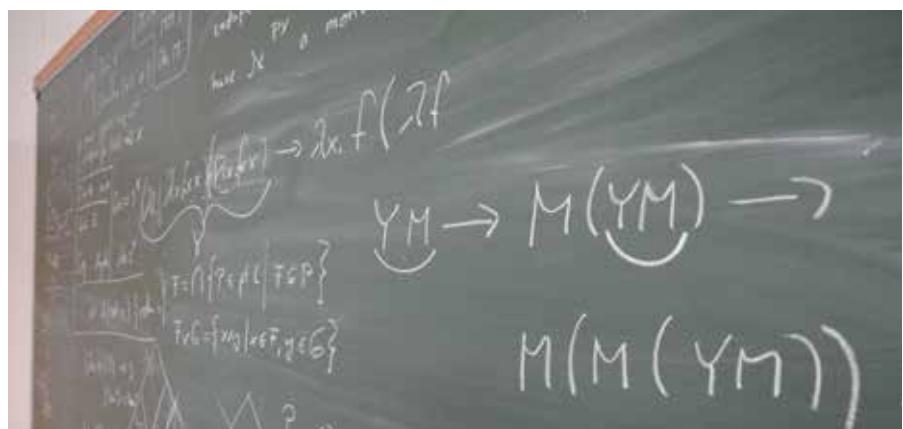
MSci Computer Science

Why did you decide to study Computer Science at Birmingham?

I was searching for a Computer Science department where research, teaching and graduate employability prospects were high. I was also looking for a great campus and community where I could get involved in various societies. For these reasons Birmingham was my first choice.

Whilst studying at Birmingham, I have had the opportunity to improve my academic and employability skills through societies, events, career fairs, talks, one-to-one appointments and I've also been able to pursue my hobbies actively.

Birmingham has some of the best urban communities in the country with green spaces everywhere. Coming from a small village in Italy, this was incredibly appealing to me.



The city of Birmingham

THE CITY

Birmingham is a modern and exciting city, famous for its historic, industrial past; it is now a centre of arts and culture, commerce and entertainment, with a vibrant and diverse community.



ENTERTAINMENT, ARTS AND CULTURE

Famous for its industrial past, Birmingham has also long been noted for its cultural heritage. The Hippodrome, Alexandra and Birmingham Repertory Theatres between them stage touring productions and West End shows, ballets, operas, pantomimes and stand-up comedy.

In addition to theatres, there is an excellent choice of cafes and restaurants providing culinary experiences from a variety of cultures, most notably in the Balti Triangle and the Chinese Quarter. There are museums, cinemas, nightclubs, pubs and wine bars in abundance.

If you like live entertainment, then take your pick from comedy clubs, local music gigs and top shows at Birmingham's principal theatres. The National Exhibition Centre and the Barclaycard Arena regularly showcase star names from the worlds of rock, pop and sport. The world-famous City of Birmingham Symphony Orchestra (CBSO) has its home in Symphony Hall.

SPORT

Birmingham is home to football clubs Aston Villa and Birmingham City, with West Bromwich Albion just up the road and in recent years it has staged more sporting championships than any other UK city. The Edgbaston Cricket Ground, close to the University, regularly hosts test matches and international tournaments including the Cricket World Cup. The city also boasts many golf courses, including The Belfry, which has hosted the Ryder Cup four times.

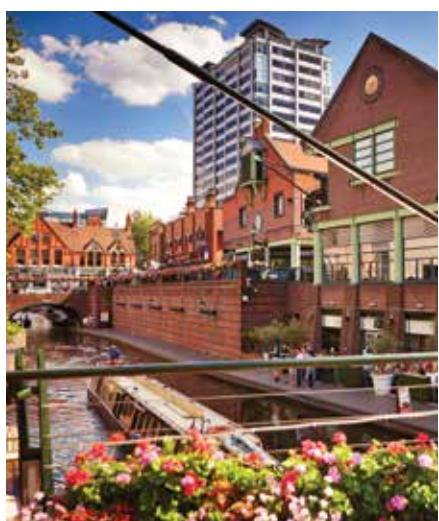
THE HEART OF ENGLAND

Located in the heart of the country, Birmingham has so much to offer visitors. With Warwickshire, the Malvern Hills and the Ironbridge Gorge all nearby, you are never more than a short drive from some of the UK's most scenic countryside.

Birmingham is at the centre of the motorway, rail and canal network, with its own international airport – you can get almost anywhere in the world from here.

RETAIL THERAPY

The city centre offers a first-class retail experience; from famous brands to independent stores, Birmingham has every shop you could ever need. You'll find a wealth of choices, including the Bullring and Grand Central for your big brands and high-street needs, and diverse vintage clothing stores in the historic industrial district of Digbeth. Make sure you venture further and explore the hidden gems of Birmingham.



School of Computer Science



The School of Computer Science



Library, School of Computer Science



Student area, School of Computer Science



Atrium, School of Computer Science

SCHOOL FACILITIES

As a student in the School of Computer Science you will be based within a purpose built multi-million-pound building, which offers 24-hour swipe card access to an impressive range of state-of-the-art facilities. These include:

- Dedicated exclusive computing labs for Computer Science students only
- Teaching labs for Robotics
- Research labs for Medical Imaging, Intelligent Robotics, HCI and Security
- Full wireless network
- Bookable seminar and meeting rooms
- Student areas (with power access)
- New Computer Science reference library
- New collaborative student/staff teaching space
- New student areas (with power access and presentation screens)

See more of our School:

www.cs.bham.ac.uk/about/gallery/

RESEARCH CENTRES

We are home to the Centre of Excellence for Research in Computational Intelligence and Applications (CERCIA), The Human-Computer Interaction Centre (HCI), and the Centre for Computational Neuroscience and Cognitive Robotics (CNCR). Our Security and Privacy Group is also recognised as an EPSRC/GCHQ Academic Centre of Excellence in Cybersecurity Research and we have a strong collaboration with the Centre for Computational Biology (CCB).



Student area, School of Computer Science



The Sloman Lounge, School of Computer Science

Why Computer Science at Birmingham?

Birmingham is a vibrant city and is one of the top universities for studying computer science in the UK, with a strong international reputation for excellence in teaching and research. We offer a broad range of flexible degrees, giving the opportunity for a challenging and rewarding academic experience.

Teaching and research excellence

Our academic community consists of people working at the forefront of their subject, and we have staff working with us from across the globe. This benefits you directly as their cutting-edge research feeds into our undergraduate teaching and gives you the chance to learn from innovative developments as they are being made.

We have been ranked eighth out of all UK Institutions for Computer Science in the *Guardian League Table 2018*, and 94% of our students go into graduate employment or further study six months after studying with us (*Destination of Leavers from Higher Education 2015/16*). 91% of our students have expressed overall satisfaction with our programmes in the National Student Survey 2017, ranking us third from all Russell Group institutions.

We have the highest possible rating for our Computer Science teaching from the QAA (Quality Assurance Agency for Higher Education.) We are also ranked eighth by the 2014 Research Excellence Framework (REF) for the quality of our research intensity. Our School has various Research Groups: Artificial Intelligence & Robotics, Natural Computation, Medical Imaging, Human Computer Interaction, Security & Privacy, Software Engineering and Theory of Computation.



Rewarding excellence

Choosing the School of Computer Science at Birmingham means you will be selecting one of the top Computer Science Departments in the UK. We recognise and reward excellence, with competitive school-specific academic scholarships available for our brightest students.

Course flexibility

At this point in time, the most important thing is for you to choose a programme that meets your future career aspirations. Once you have selected an undergraduate degree programme, you will find that it is carefully structured to allow you as much choice as possible, while making sure you take core modules to achieve a solid base in the subject. You will study a range of compulsory modules in the first and second year, which will give you a solid foundation in the fundamentals of computer science. In our BSc degrees, you will spend your final year undertaking a project and choosing from a range of optional modules. MSci and MEng students will spend their third year choosing from a wide range of optional modules, and their final year taking a project and delving deeper into a range of optional Masters-level modules. This curriculum is designed to allow you to really gain a good understanding of computer science, and then specialise in modules of your choice, in effect tailoring your own education. You will also have the chance to mould your career direction as your ideas and interests evolve.

Our BSc in Artificial Intelligence and Computer Science allows you to study fundamental computer science subjects in your first two years, and then specialise in exclusive AI-specific modules and a project in your final year.

Student support

To help you settle into your first year, all students are allocated an academic member of staff as a personal tutor for academic related matters. In addition, the Student/Staff Committee provides a useful forum for raising and addressing issues. We also have a dedicated

welfare team who provide specific sessions each day, where students can drop in and have a chat. Second- and third-year students also work as demonstrators in lab sessions, who can help you with any questions you have regarding your studies.

The University also operates 'PASS', where higher year students help first-year students with their study across an academic module. Find out more: <https://intranet.birmingham.ac.uk/as/libraryservices/pass/index.aspx>

There are over 200 different clubs and societies to get involved with through our Guild of Students. The University has its own internal student recruitment agency, Worklink, and many of our students also act as ambassadors at Computer Science events and activities.

Computer Science Society

We also have a student-led Computer Science Society (CSS), who offer support and organise various social and professional events. These range from hackathons, industry presentations, conferences and workshops to the CSS BBQ, Summer Ball, and various other social activities.

Find out more: www.facebook.com/CSSBham

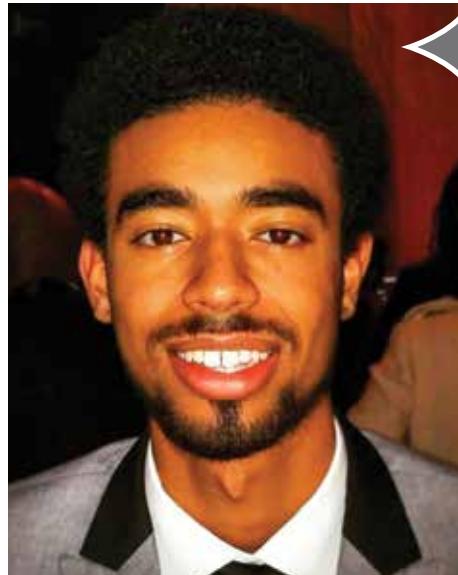
Award-winning development

At the School of Computer Science, we are not just renowned for teaching and research excellence. We also produce novel solutions for real-world applications. We work with Jaguar Land Rover to make their vehicles more secure, and have contributed to the development of the Trusted Platform Module which makes many of our computers capable of secure cryptographic operations. We have deployed autonomous, intelligent robots in security and health support facilities, and work closely with the nuclear industry to use similar systems to help speed up nuclear decommissioning. We are also proud to have developed a revolutionary, award-winning method for diagnosing skin cancer.



Business and industry links

In the School of Computer Science we organise events and have support services to help you refine your career options. Support is tailored to your chosen subject area and draws on our excellent range of resources. We hold specialist careers fairs throughout the year just for our students and have strong local and national relationships with major industry players from the public and private sector. These companies range from major software houses such as IBM, Microsoft, Oracle, ARM, Logica to mainstream services, finance and consultancy firms such as Accenture, Goldman Sachs, Capgemini, PwC, UBS. We offer a wide network of links that can help you to secure a year in industry, a placement and eventually a graduate position. Plus, senior speakers from these organisations give specialist lectures throughout the year. We also have research partnerships with many blue-chip companies including BT Exact, Honda, HP, Marconi, QinetiQ, Rolls Royce, Severn Trent and Sony. Find out more on page 22.



CASE STUDY KYLE ALLEN-TAYLOR MSci Computer Science with Year in Industry

Why did you decide to study Computer Science at Birmingham?

I chose Computer Science as my degree because at school I thoroughly enjoyed my Computer Science A level. I found it intriguing to learn more and more about how computer systems operated. This interest, and my enjoyment of mathematics made me realise that I wanted a career that would be practical and would involve mathematics and creative problem-solving. Computer Science combines both these aspects, and being a computer scientist is one of the most flexible and stimulating careers one can have.

I decided to study Computer Science at Birmingham for several reasons. Birmingham has a reputation for excellence regarding Computer Science. There was also the benefit of location, and the campus experience you get at Birmingham offers so much more than a city university could. The campus has everything you could ever need, all within close proximity.

What is your experience of the School?

The School of Computer Science is fantastic; it provides everything a student could ever need. The School has its own private network, which allows only computer science students to log in to the PCs provided, and it's one of the only buildings with 24-hour access. The lecturers are excellent, and the School really listens to the students' feedback.

Where are you going for your Year in Industry, and how did you find it?

I will be working for IBM as a Software Developer. I applied for a variety of placements, and the Careers Fair that Computer Science organises definitely helped. I don't believe I would have landed this placement without the experience I gained from two paid internships that I did with the University. They both helped to improve my CV and gave me additional skills that employers found attractive.

THE UNIVERSITY



Birmingham is an internationally recognised, research-led institution, and we are one of the few universities to have a large, central campus that is incredibly close to the city centre.

Our beautiful 243-acre parkland campus offers students a safe, friendly environment with all the facilities of a small town – including bars, cafes, shops, banks, an art gallery, a brand new music hall, museums, a doctors surgery and our very own railway station. Considerable investment has been made into brand new facilities, including a state-of-the-art sports centre and new library.

LEARN MORE



Our current students and alumni are happy to answer any questions you might have about life and study in Computer Science at Birmingham. Please contact: ug-admissions@cs.bham.ac.uk for details of our 'New Applicant Facebook Group'.



Studying Computer Science at Birmingham

Computer Science at Birmingham dates back to the late 1950s. The School of Computer Science was one of the first academic departments in the UK to undertake research and teaching in this field.

Some 60 years later, we now provide specialist teaching and conduct world-leading research in theoretical computer science, machine learning, artificial intelligence, optimisation, security, robotics and human computer interaction.

As an undergraduate student within the School of Computer Science you will be taught by academics at the forefront of their fields and will benefit from an industry-informed curriculum.

You will develop a high level of practical skills and will have the opportunity to build significant specialist knowledge in applied computer science, whilst maintaining the flexibility to follow your interests through the optional modules on offer.

Below you will find an overview of the programme and application details for all of our undergraduate programmes. Please note General Studies and Critical Thinking are not accepted. Please do not hesitate to contact our Undergraduate Admissions Team should you require any further information.



CONTACT US

Undergraduate Admissions Team
School of Computer Science

Tel: +44 (0)121 415 8742
Email: ug-admissions@cs.bham.ac.uk
www.cs.bham.ac.uk

/uobcompsci
 @uobcompsci

Contact us to join our 'New Applicant FB Group' and talk to our Admissions Team, current students and alumni

Standard UK requirements					
Programme Title	Computer Science	Computer Science	Computer Science and Software Engineering	Artificial Intelligence and Computer Science	Computer Science with Digital Technology Partnership
Award	BSc	MSci	MEng	BSc	BSc
UCAS code and duration	G400 – 3 years G401 – 4 years (with Year in Industry) I10A – 4 years (with Study Abroad)	I101 – 4 years I103 – 5 years (with Year in Industry) I102 – 5 years (with Study Abroad)	GG46 – 4 years GG6L – 5 years (with Year in Industry)	GG47 – 3 years GG74 – 4 years (with Year in Industry)	G402 – 4 years (with Year in Industry)
Teaching quality	QAA: Excellent	New programme	QAA: Excellent	QAA: Excellent	New programme
Entry requirements					
A level grades	AAA	A*AA	A*AA	AAA	AAA
Required subjects	Grade A in A level Mathematics	Grade A in A level Mathematics	Grade A in A level Mathematics	Grade A in A level Mathematics	Grade A in A level Mathematics
International Baccalaureate grades	666 at Higher Level (32 points overall)	766 at Higher Level (32 points overall)	766 at Higher Level (32 points overall)	666 at Higher Level (32 points overall)	666 at Higher Level (32 points overall)
Required subjects	6 in Higher Level Mathematics 5 in Standard Level English	6 in Higher Level Mathematics 5 in Standard Level English	6 in Higher Level Mathematics 5 in Standard Level English	6 in Higher Level Mathematics 5 in Standard Level English	6 in Higher Level Mathematics 5 in Standard Level English

We welcome a range of qualifications from all over the world.

To find out more and discover whether your qualification is suitable, please visit:
www.birmingham.ac.uk/International/students/country/index.aspx

This brochure was written several months in advance of the start of the academic year. It is intended to provide prospective students with a general picture of the programmes and courses offered by the School. Please note that because our research is constantly exploring new areas and directions of study, some modules may be discontinued and new ones offered in their place.

Undergraduate degrees in Computer Science

Full details on all undergraduate degrees in Computer Science can be found at www.cs.bham.ac.uk/admissions/undergraduate

BSc Computer Science

This degree will provide you with a balance of general computer science, practical software engineering, and more specialised areas such as artificial intelligence and cyber security. It will focus on analytical methods and technical skills, and offer you the opportunity to combine knowledge and personal skills as you research and develop software solutions to problems.

You will learn about all kinds of computational systems, their theory, design, development and application. This includes programming languages, software engineering, AI, operating systems, nature-inspired computation, robotics and the theory of computation. Your first two years will be compulsory modules, and in your final year you will take undertake a project, and have the chance to tailor your learning by choosing from a wide range of optional modules.

MSci Computer Science and MEng Computer Science and Software Engineering

Our MSci in Computer Science and MEng in Computer Science and Software Engineering are both four-year single honours degree programmes. You will be provided with a thorough coverage of core areas in computer science, giving you a systematic grounding in the theoretical underpinnings of the discipline. You will have the ability to go deeper into specialist areas in appropriate modules than is possible in the BSc degree.

The first two years of course content for these degrees are compulsory fundamental modules, whilst in the third year you have a wide variety of optional modules to choose from. In the fourth and final year you have the unique opportunity to select extended modules from the School's portfolio of specialist Masters subjects, in addition to tackling a large project.

You will be able to tailor your studies by choosing modules relevant to your chosen degree, and will graduate with either an MSci or an MEng.

BSc Artificial Intelligence and Computer Science

In the field of Artificial Intelligence (AI) you create machines and software that solve problems, and study the nature of intelligence. The engineering side of this field is especially relevant in today's world because of the benefits of making computers perform tasks that normally require human intelligence. From a scientific viewpoint, artificial intelligence is a multidisciplinary field that connects with computing, psychology, neuroscience, philosophy, mathematics and linguistics.

This degree programme will give you all the computing skills you need to enter industry, whilst also allowing you to acquire scientific skills in order to pursue research. We are one of the leading centres for AI teaching and research in Europe, which enables us to offer an unusually rich and innovative programme for undergraduate study. In your first and second year, you will study a range of compulsory modules, in order to give you a solid grounding in computer science. In your final year, you take more advanced modules in specific areas of AI, including Natural Computation, Machine Learning, Autonomous Robotics, Computer Vision and Natural Language Processing, alongside an AI-related project.



BSc Computer Science with Digital Technology Partnership (PwC)

This degree, in collaboration with PwC, will allow you to gain a deeper understanding of the fundamental aspects of computer science, alongside specialised business modules. Your first and second year will be spent gaining a solid foundation in computer science, whilst your final year will give you a chance to go deeper into particular areas of interest. Your penultimate year will be spent working in industry for PwC. For more information please see page 12.

Degrees with a Year in Industry

All programmes can be combined with a Year in Industry. This extra year is typically taken between years two and three of a three-year degree, and years three and four of a four-year degree and if successful leads to your degree title including 'with a Year in Industry'. See page 20 for more details.

Degrees with International Study Opportunities

All students enrolled on the BSc or MSci in Computer Science programmes are entitled to pursue the opportunity to undertake a Study Abroad year, in the penultimate year of their degree. To learn about the benefits of choosing to study abroad see page 21.

BSc/MSci Mathematics and Computer Science

Birmingham also offers a BSc and an MSci in Mathematics with Computer Science. These degrees are hosted by the School of Mathematics. For more information please visit: www.birmingham.ac.uk/mathematics-ug

NEW FOR 2018

BSc Computer Science with Digital Technology Partnership – 4 years



Do you want a traditional university degree, but would like to start earning a salary now?
 Do you have a strong work ethic and can be disciplined with your study?
 Do you want to start your technology career with a leading employer?

If you answered yes to any of these questions then this new and exciting degree could be right for you.

This four-year programme, designed in partnership with PwC, will allow you receive an outstanding education from one of the UK's top ten Computer Science departments, whilst also gaining work experience with PwC's Tech teams during placements.

On these placements you will get to work with some of the biggest brands in the world, and the work itself can often be front page news. You will spend your first and second year at University, undertaking placements at PwC outside of term-time and your whole third year will be spent working at PwC, before you return to University for your fourth year.

Why is this course right for me?

Unique

This four-year programme is one of a kind – be the first to take this opportunity to study and work at the same time, whilst specialising in Technology.

Earn a salary while you learn

All your University tuition fees are fully funded by PwC, and as a PwC employee, you'll receive a salary each month.

Graduate opportunity

Achieve a 2:1 at the end of your Level 6 degree apprenticeship and you'll secure your future at PwC.

Work placements

There will be plenty of time whilst at PwC to gain practical experience. You'll work on cutting-edge digital and technology client work.

Support

You'll be fully supported, both at University and work, with buddies, mentors, people managers and peers.



ENTRY REQUIREMENTS

AAA with an A in Mathematics, from three A levels or equivalent (excluding General Studies and Critical Thinking), and a C or above in GCSE English.

As part of our recruitment, you will also be required to complete a supplementary application form which will be sent to those applicants who meet our academic requirements. Suitable applicants will be invited to an assessment day, which will give you the opportunity to find out more about the programme and the placements with PwC. You will also get the chance to tour our campus, meet our students, academic staff and colleagues from PwC.

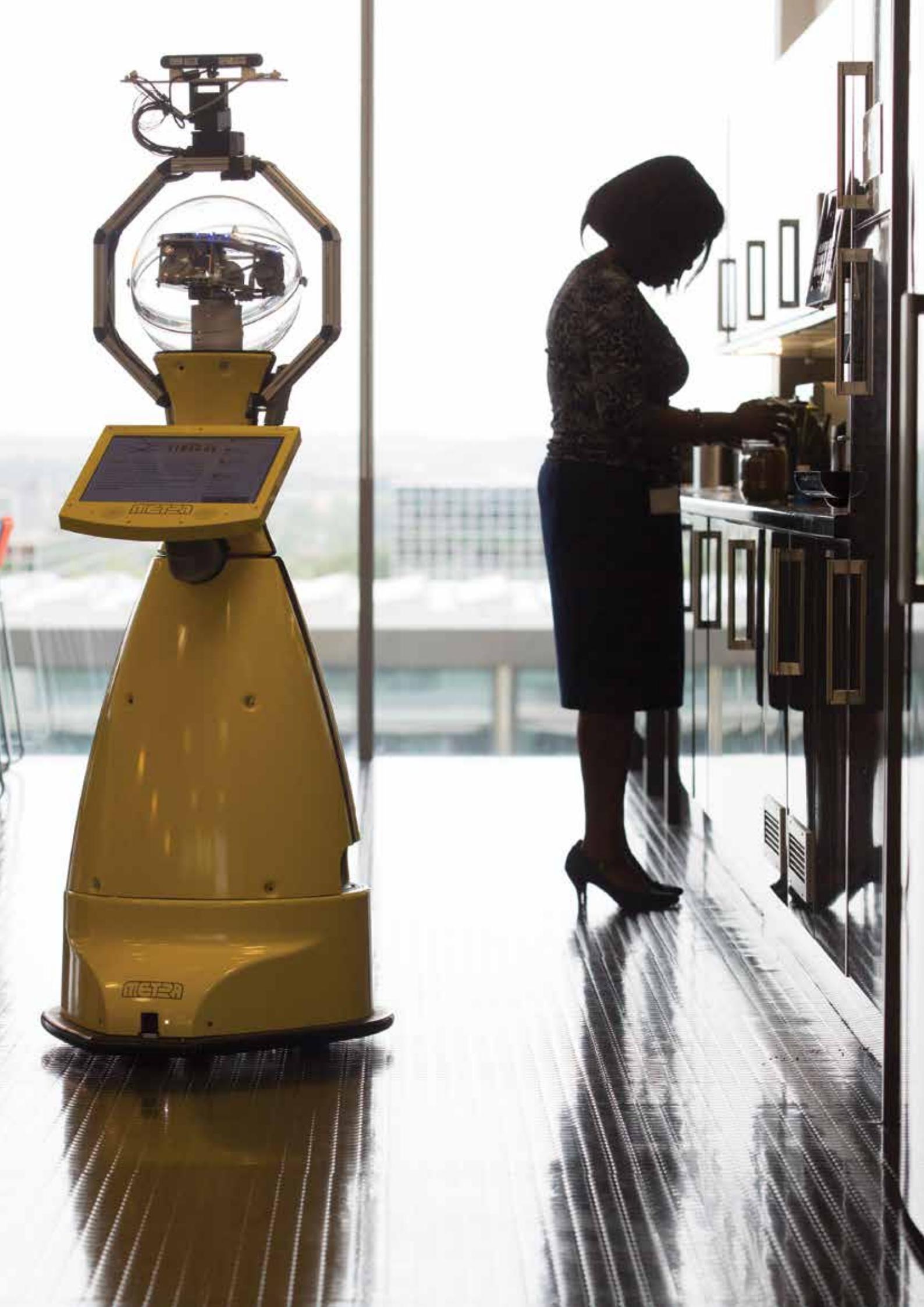
Successful assessment day applicants will be notified shortly after their assessment day attendance. Those that are not successful in gaining a place on this programme will be automatically offered a place on our BSc in Computer Science.

The assessment days will be jointly delivered by PwC and Birmingham. You can find further information here:

www.birmingham.ac.uk/compsci-pwc



Please note this programme is only available for UK/EU students.



Module information

Our curriculum is designed to allow us to provide a solid computer science education to our students, but also give you the chance to really delve deeper into subjects of interest in your final year.

We have provided a wide range of options in the final year(s) for you to choose from, each supported by prerequisite subjects achieved in the first two years. In this new curriculum our students will study 120 credits worth of modules in each of the first two years and 80 credits of options and a 40-credit project in the final year.

(For the MSci and MEng programmes, students will study 120 credits of options in the third year, and 60 credits of options and a 60 credit project in the final year.) The BSc in Artificial Intelligence and Computer Science is dedicated to the study of AI, and allows you to go much deeper into AI-module content.



Year 1 Modules (credit worth in bracket)	BSc Computer Science	BSc Computer Science with Digital Technology Partnership (PwC)	BSc Artificial Intelligence with Computer Science	MEng Computer Science and Software Engineering	MSci Computer Science
Artificial Intelligence (20)	C	C	C	C	C
Data Structures and Algorithms (20)	C	C	C	C	C
Logic and Computation (20)	C	C	C	C	C
Mathematical Foundations of Computer Science (20)	C	C	C	C	C
Programming in Java (20)	C	C	C	C	C
Fundamentals of Programming in Java (20)	(1)		(1)	(1)	(1)
Widening Horizons Module (20)	(2)		(2)	(2)	(2)
Business Organisation & Management (10)		C (3)			
Introduction to Financial Analysis (10)		C (3)			
Total credits for Year 1 – 120					

[1] Year 1 students (studying BSc CS, CSAI, MEng, MSci) that do not have A level Computing at Grade A are required to take 20-credit Fundamentals of Programming in Java

[2] Year 1 students (studying BSc CS, CSAI, MEng, MSci) that have A level Computing at Grade A are required to take a 20-credit Widening Horizons module

[3] Year 1 students studying BSc Computer Science with Digital Technology Partnership (PwC) are required to take two 10-credit Business School modules. Those that do not have Grade A in A level Computing will undertake weekly tutorials.

C = Compulsory modules



Year 2 Modules (credit worth in bracket)	BSc Computer Science	BSc Computer Science with Digital Technology Partnership (PwC)	BSc Artificial Intelligence with Computer Science	MEng Computer Science and Software Engineering	MSci Computer Science
Advanced Functional Programming (20)	C	C	C	C	C
Mathematical Modelling and Decision Making (20)	C	C	C	C	C
Security and Networks (20)	C	C	C	C	C
Software Engineering (20)	C	C	C	C	C
Systems Programming in C/C++ (20)	C	C	C	C	C
Team Project (20)	C	C		C	C
Team Project (20) AI			C		
Total credits for Year 2 - 120					

C = Compulsory modules

Third-year modules

Students studying the BSc Computer Science, MSci Computer Science and MEng Computer Science with Software Engineering have a variety of 20-credit optional modules to choose from. BSc Computer Science students will also undertake a 40-credit final-year project. (Students studying the BSc Computer Science with Digital Technology Partnership degree will spend their third year working in industry for PwC. They will take a 40-credit project and choose subjects from a selection of optional modules listed below in their final year).

Examples of modules may include:

- Advanced Networking
- Complex Adaptive Systems
- Computer Graphics
- Computer Vision and Imaging
- Computer-Aided Verification
- Human Computer Interaction
- Individual Study
- Intelligent Robotics
- Language and Cognition
- Machine Learning and Intelligent Data Analysis
- Programme Language, Principles, Design and Implementation
- Security of Real World Systems
- Teaching Computing at Schools
- Theoretical Foundations for Security

** Students studying the BSc Computer Science with Year in Industry/Study Abroad will spend their penultimate year working or studying outside the UK, and study their project and optional modules as listed above in their final year.

BSc Artificial Intelligence with Computer Science

Students studying the BSc Artificial Intelligence with Computer Science will take a 40-credit AI-related final-year project, and choose 60–80 credits from the following 20-credit modules:

- Complex Adaptive Systems
- Intelligent Robotics
- Language and Cognition
- Machine Learning and Intelligent Data Analysis

** Students studying the BSc Artificial Intelligence with Computer Science with Year in Industry will spend their penultimate year working, and study their project and optional modules as listed above in their final year.

Fourth-year modules

Students studying the MSci Computer Science and MEng Computer Science with Software Engineering will undertake a 60-credit final-year project, and have a variety of extended optional 20 credit modules to choose from.

Examples of modules may include:

- Advanced Networking (Extended)
- Advanced Robotics
- Complex Adaptive Systems (Extended)
- Computer-Aided Verification (Extended)
- Computer Graphics (Extended)
- Computer Vision and Imaging (Extended)
- Human-Computer Interaction (Extended)
- Individual Study (Extended)
- Intelligent Robotics (Extended)
- Language and Cognition (extended)
- Machine Learning and Intelligent Data Analysis (Extended)
- Programme Language, Principles, Design and Implementation (Extended)
- Robot Vision
- Security of Real World Systems (Extended)
- Teaching Computing at Schools (Extended)
- Theoretical Foundations for Security (Extended)

** Students studying the MSci Computer Science with Year in Industry/Studying Abroad and the MEng Computer Science with Software Engineering with Year in Industry will spend their penultimate year working or studying abroad, before returning to take their project and modules from this list in their final year.

For further information on the modules we offer, please see:

www.cs.bham.ac.uk/admissions/undergraduate/degrees/new-curriculum/



Artificial Intelligence explained

Artificial Intelligence (AI) is one of the current hot topics in Computer Science and society more broadly. It is at the heart of everyday technology like navigation and photography apps, powers internet-scale algorithms for recommending purchases and content to view, and will enable huge future impact through autonomous cars and robots.

AI is the study of the nature of intelligence by building computer systems, and the application of these insights in solving real-world problems. AI research at Birmingham covers a wide range of both theoretical and applied AI, including:

- **Robotics** – Birmingham has one of Europe's leading robotics labs, where undergraduates and researchers work to make robots that navigate, speak, see, learn, build maps, and manipulate new objects. Their work is being applied in applications from autonomous driving to warehouse logistics to nuclear decommissioning.
- **Machine Learning techniques** are causing a revolution in computing, thanks to the large datasets and computing power now available via the web. At Birmingham we have machine learning experts working in robotics, computer vision, big data, and analysing brain signals, galaxy formation, web browsing behaviour and much more.
- **Computer Vision** – this includes all aspects of understanding images, including tracking people in video, object recognition, face detection, and understanding medical images (fMRI, X-rays, ultrasound).
- **Neural Networks** are inspired by the stimulation of neurons in the brain, and are at the centre of deep learning, which is revolutionising what machines are capable of. At Birmingham we run a world-leading Centre for Computational Neuroscience where such models are compared to human behaviour and brain function.
- **Natural Language Processing** – this means producing computer systems that can communicate in human languages. At Birmingham we are finding new ways for computers to understand the emotion of social media posts, and process scientific documents to create new resources for learning.

- **Nature-inspired Computing** creates algorithms using ideas from natural systems, such as evolution, ant foraging, molecular computation, and cell signalling. Our researchers apply these ideas to problems from designing aircraft wings to discovering new drugs.

Applications of AI

There are a huge number of uses for AI technology, including:

- Fraud detection systems which use neural networks and machine learning to detect stolen credit cards by learning customer behaviour
- Automated trading algorithms that outperform the market by evolving their stock trading strategies
- Self-driving cars, including collision avoidance, self-parking, navigation by vision, and complete autonomous driving are now entering the car market
- Genetic algorithms that are used in scheduling to find the most efficient way to roster staff or allocate resources
- Medical decision support systems which are now increasingly used by clinicians to support clinical decision making
- Forensic analysis of CCTV images using AI vision technology which is being developed to catch criminals

AI teaching

Our degree programmes provide you with the opportunity to develop a strong theoretical grounding in AI plus many opportunities to put this theory in to practice. Our AI teaching includes:

- **Artificial Intelligence** – a general module covering the main AI representations and algorithms used today. This covers search, probabilistic reasoning and machine learning.

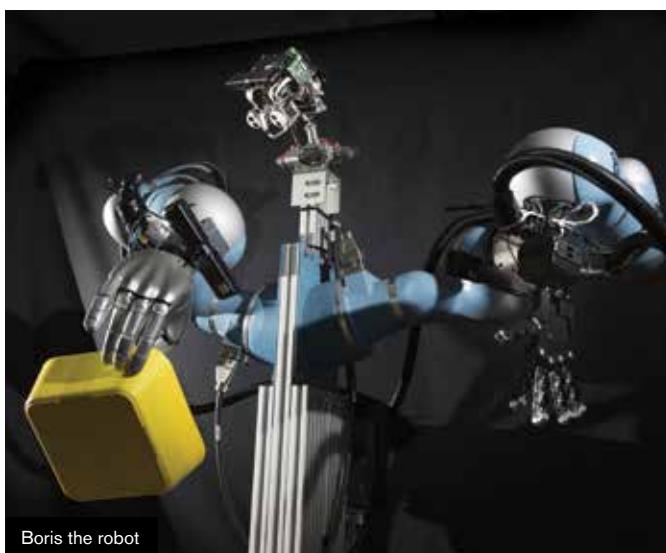


Dr Nick Hawes, Reader

- **Robotics** – across the programme you have opportunities to implement AI algorithms on real robot hardware. Typical robot projects range from small Lego robots collaboratively solving problems, up to large research-standard mobile robots performing localisation and navigation.
- **Machine Learning** – you will gain an understanding of the core concepts, methods, and algorithms for analysing and learning from data, illustrated through a set of methods widely used in practice.
- **Nature-inspired computation** – you will study the basic concepts, theories and methods for designing and understanding complex adaptive systems, using techniques from fields such as artificial life, evolutionary computation, swarm intelligence and artificial neural networks.
- **Computer Vision and Imaging** – we cover all the steps needed to transform an image into the structural and semantic entities necessary to understand its contents. We teach subjects such as object recognition, categorisation, segmentation, registration, stereo vision, motion analysis, and tracking.



First year lego robots



Boris the robot



UG students working in AI

Cyber Security explained

Cyber security is an integral part of everything we do in a digital society. From messaging friends to making bank payments, from medical implants to the power network, it is becoming increasingly important to ensure that all connected devices are secure.

Cyber security deals with the design and analysis of these systems, and our research feeds into our teaching.

There are many applications of cyber security, involving all types of connected systems and devices. The approach we take to our research and teaching falls into two broad categories:

- Designing secure systems –

As more and more of our devices are linked together, not just computers but everything from phones to door locks to vehicles, it is increasingly important that security is considered at the design stage. We want to make sure that future systems will be secure, and teach useful skills for programmers, engineers and designers in any industry.

- Analysing systems for security –

There are many systems currently in use that may not have been built with security as a top priority. It is important to identify, understand and fix devices or systems that have vulnerabilities.

Through formal analysis of code, automated techniques to check firmware, active penetration testing, or hardware side channel attacks, we analyse all manner of digital devices to find and fix vulnerabilities. Whether it is a drone, phone or car, we want to fix vulnerable systems to ensure they function securely and to protect user privacy.

Our Security and Privacy group is recognised by NCSC as an Academic Centre of Excellence in Cyber Security Research.

We work on the following key issues:

- Applied cryptography – Almost all cyber security is underpinned by cryptography. We research new forms of encryption and implementation for real-world applications.
- Embedded devices – from smart cards to IoT to trains, we work on all types of cyber physical systems.

- Automotive security – as cars become increasingly connected, we test and design ways to make them more secure.
- Wireless security – we work to make sure the ways information is carried are not vulnerable to attack.
- Cloud security – we want to make sure that user data is secure and private without compromising functionality.
- Formal verification – at the design stage we use mathematics to provide proof that systems are secure
- Electronic voting – we are working on ways to make online voting secure, verifiable and usable.
- Security and privacy for society – We want to make sure that user data is protected from attackers, working on issues that are important to government, industry and society as a whole.



'Everything we do in the future will involve digital technology, whether it's driving a car or turning on a light switch. This will create new opportunities and new risks. Therefore it's crucial to understand the fundamentals and implementations of cyber security.'

PROFESSOR MARK RYAN,
Professor in Computer Security

Cyber Security teaching

We understand the importance of providing students with both a strong theoretical grounding and relevant practical experience in order to be able to respond to a variety of roles and threats. Our teaching in Cyber Security includes:

- Systems and networks – as computers are embedded in everyday life, protection against the criminal or unauthorised use of electronic data is essential. We introduce students to the core concepts of storing, using and transmitting data securely.
- Real-world security – it is important to understand how security works in real systems. We teach students how to find, analyse and defend security vulnerabilities using a range of practical methods and tools.
- Security theory – cyber security is very hard to achieve in practice. By understanding the theoretical foundations of security, such as cryptography, authentication and confidentiality, students are able to build systems that resist a broader range of attacks.

HIGHLIGHTS

- Since its inception in 2005 by Professor Mark Ryan, the Security and Privacy group has grown to 11 academics, making it one of the largest academic cyber security research centres in the UK.
- Secure chips – work by Professor Mark Ryan in discovering vulnerabilities in the Trusted Platform Module (TPM) led to revisions in the TPM 2.0 by the international Trusted Computing Group consortium, to make sure future hardware is secure – this probably includes your current laptop.
- Critical infrastructure – our researchers, led by Dr Tom Chothia, are making sure that critical national infrastructure such as rail and power networks, as well as other industrial control systems, are secure against cyber attacks.
- Hacking vehicles – Dr Flavio Garcia, working with Dr David Oswald, has improved the security of cars by exposing vulnerabilities in immobilisers and keyless entry systems in systems used by over 100 million drivers. They are now working on secure architectures for next generation connected vehicles.
- Fatal flaws – our lecturers, working with students, are constantly improving the security of essential devices. From glucose monitors to pacemakers, our researchers have found flaws that leave patients vulnerable to tracking and interference. Having found a possible attack, we work with manufacturers to design more secure implementations.



Year in Industry

Competition for graduate jobs is tough so you need to do what you can to stay ahead in your career. Gaining relevant work experience can often give you that point of difference, helping you to develop skills and experience that will enhance your University education and maximise your prospects.

School of Computer Science students all have an excellent opportunity to supplement their studies with a year working in industry. In fact, many of our students go on to work for their year-out employers after graduating.

How does it work?

If you choose this option, you will spend the first two years of your degree at Birmingham, followed by the placement year on a salary, then back to the University for your final year. During your year in industry you will be able to put taught theory into practice, as well as gain valuable experience and skills.

Who will my placement be with?

We have strong local and national relationships with major industry players, from both the public and private sector. The School of Computer Science runs specialist Careers Fairs, where different companies come to meet our students to showcase opportunities for Years in Industry and graduate employment. You should find an opportunity that suits your career goals, and whilst it is your responsibility

to choose and apply for a Year in Industry placement, you will be supported by the School throughout, and can access the Engineering and Physical Sciences (EPS) Careers Network Team for help.

What will I do?

You will learn how different organisations operate, gain valuable interpersonal skills and knowledge, apply theory to practice, and experience a real working environment, which will all help towards your future career choices. At the end of your studies you will be awarded your degree with 'A Year in Industry'.

Year in Industry placements

Companies who have hosted our students include UBS, Goldman Sachs, BAE Systems, Microsoft Studios, RIM, Caterpillar, General Electric, IBM and Google, amongst others.

Find out more:

www.cs.bham.ac.uk/admissions/undergraduate/year-in-industry



CASE STUDY

LUKE CROSS

BSc Computer Science with Year in Industry

What interests you about Computer Science and why did you decide to study at Birmingham?

My original interest in the subject sprouted when I took A level Computing. The challenges that are associated with the subject and problem-solving skills needed are always something that has interested me. I came to an Open Day and then an Applicant Visit Day, and my decision was made when I saw how friendly and helpful staff and students were.

Where did you go in your Year in Industry?

I was lucky enough to secure a placement with Microsoft, and worked in a Microsoft Game Studio in London as a Software Developer Engineer in Test. I attended careers fairs in the department, and accessed the Careers Network Service for assistance with my application and interview.

How do you think your placement will benefit your future career?

I was welcomed into different teams, treated as a full-time employee and experienced new challenges day by day. I have thoroughly enjoyed my time on placement, and believe it has readied me for an exciting career in technology.

CASE STUDY

ASVINI PATEL

BSc Computer Science with Year in Industry



Why did you decide to study Computer Science at Birmingham?

I decided to study Computer Science because now more than ever the opportunities for women in the technology industry are exponentially rising. Birmingham provides networking opportunities with well known companies and by getting students involved in many events, as well as teaching us the vital skills needed for our futures.

Having come from London, I knew being close to a big city was something that was important to me. Once I visited Birmingham I realised how amazing the campus and department was and I could really see myself studying here. What also drew me to Birmingham were the extracurricular activities that were available. I was very keen to get involved and meet new people, and have been able to do so much.

Where are you going on your Year in Industry?

I am going to be working in London for EY as an eDiscovery Analyst before returning for my final year.

International study opportunities

Experience new cultures, meet new people, see more of the world – all while continuing your studies. That's what a year of study abroad can offer you – enhancing your learning, expanding your horizons and offering you an experience to be remembered throughout your university and professional life.

The benefits

Students who have studied abroad say that it is the best year of their lives. The benefits from participating in a year abroad include:

- Developing relevant, marketable skills – problem solving, communication, patience and perseverance, determination, self-motivation, analytical and study skills
- Academic or subject related reasons – experience a different academic environment and way of teaching
- Enhanced career prospects – employers more likely to choose you with additional offerings other than just your degree
- Language and culture – opportunity to be genuinely immersed into another culture rather than just being a traveller
- Personal development – increased confidence and ability to deal with difficult situations and unfamiliar surroundings
- Contacts – build worldwide relationships that can last a lifetime and benefit you in years to come

Am I eligible?

All students enrolled on the BSc or MSci Computer Science course are eligible to take part in the Erasmus+ Exchange programme and International Exchange programme. This means that you will spend your penultimate year at an approved institution in another country, returning to Birmingham for your final year.

What are my options?

The University of Birmingham has an excellent international reputation and we are proud of the growing opportunities for our Computer Science students to study overseas at one of our partner institutions.

ERASMUS+ EXCHANGE

This exchange programme is for students that want to study at one of our partner universities in Europe. The programme is run by the Study Abroad and Exchanges Team within the University's central International Relations Department, and students are able to spend up to a year with a partner institution.

For more information please visit:
www.birmingham.ac.uk/studyabroad-outgoing

INTERNATIONAL EXCHANGE PROGRAMME

We have international partner universities all over the world that offer study opportunities for our students. Countries include: Argentina, Australia, Brazil, Canada, Chile, China, Ecuador, Ghana, Israel, Japan, Korea, Malaysia, Mexico, New Zealand, Singapore, Uruguay, USA and the West Indies.

LEARN MORE

Contact the Study Abroad Office:
 Tel: +44 (0)121 415 8423
 Email: outgoingstudyabroad@contacts.bham.ac.uk
www.birmingham.ac.uk/studyabroad



CASE STUDY

ELLIOTT UPTON

BSc Computer Science with Year Abroad

How has your experience at Birmingham been?

Birmingham has provided me with an environment where I can not only develop my knowledge but flourish as a person as there are constantly things going on to help me build skills for my future.

Throughout my ongoing study I have met and befriended people from all over the world in the friendliest department I have ever been in – it's like a giant family.

Furthermore, being able to meet and work with so many different people allows me to understand and learn different perspectives and approaches to challenges that I face.

Where have you gone for your Year Abroad?

I always wanted to study abroad, and Birmingham facilitated and supported me in the opportunity to study for a year at the University of Melbourne. Australia not only fulfils an ambition but I am learning many valuable life skills through adapting to working and living in a new environment. Both institutions are phenomenal places featuring world-class academics and teaching, from which I am learning more than I could have ever imagined. The different specialisations are allowing me to study different areas of Computer Science in depth, diversifying my skill set and broadening my career options.

I am thoroughly enjoying my current year out and would urge anyone to consider doing a Year of Study Abroad.

What can you do with a degree in Computer Science?

There is so much potential in the real world for Birmingham's computing graduates. Birmingham is one of the top universities often targeted by prestigious companies when looking for new employees. So whilst graduation may seem a long time away, it is worth considering the competitive advantage you will gain with a Birmingham degree.

Studying an undergraduate degree in Computer Science will develop management skills such as communication, teamwork, time management and report writing.

It will give you a disciplined approach to analysing problems, with the ability to design creative solutions and critically evaluate the results. Employers are impressed by the combination of technical and transferable skills offered by computing graduates, and as such, you might find yourself in a variety of environments in academia, industry, research and commercial organisations.

What skills will I develop?

You will gain a disciplined approach to analysing problems, and the ability to design creative solutions and critically evaluate the results. Future employers will be interested in your technical skills, in particular your ability to program in multiple languages, and the transferable skills you've developed, such as innovation and the adaptability to cope with rapid change in technology.

WE HAVE EXCELLENT CAREERS AND EMPLOYABILITY LINKS, AND

94%

OF OUR STUDENTS ARE IN GRADUATE EMPLOYMENT, OR FURTHER STUDY, SIX MONTHS AFTER STUDYING WITH US (DLHE 2015/16)

You may wish to pursue postgraduate study before entering employment or embark on an academic career. Our School is home to a wide range of research areas, including AI/Robotics, Natural Computation, Medical Imaging, HCI, Security and Theory of Computation. For more information on postgraduate study, visit: www.cs.bham.ac.uk/admissions/postgraduate-taught

Birmingham graduates go on to secure many different roles within industry, as well as pursuing postgraduate study and doctoral research worldwide.

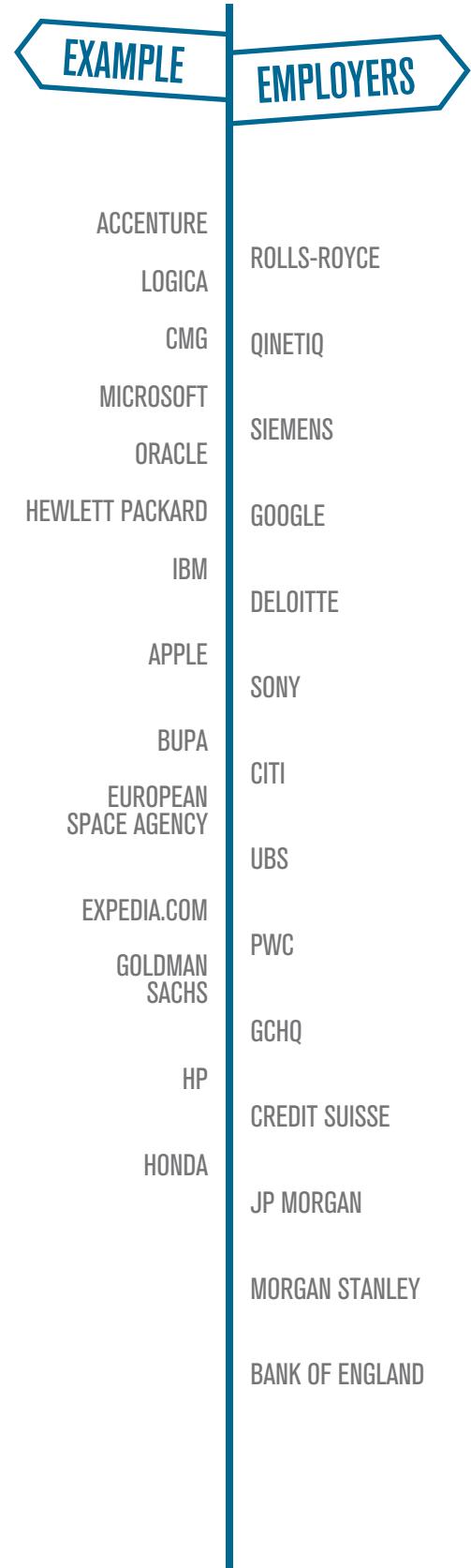
Support

Our School organises department-specific specialist Careers Fairs throughout the year (which include our Software, Systems and Emerging Technology Fair and Financial Computing and Consultancy Fair), where global companies come onto campus to meet our students exclusively. We have a central University Careers Network, who have a dedicated Engineering and Physical Sciences team that you can visit for advice and guidance throughout your studies.

Find out more about our connections with industry, opportunities available and what our graduates are doing now: www.birmingham.ac.uk/ug-comp-sci-employability

Want to chat to our current students and graduates?

Email: ug-admissions@cs.bham.ac.uk
for details of our new 'Applicant Facebook Group'

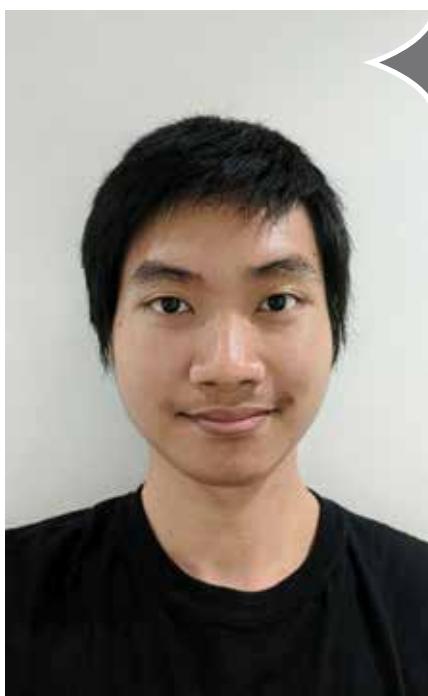


WHAT TYPES OF JOB CAN I GET?

The following job titles and their definitions are not standardised within the industry, but they have been chosen to give you a flavour of the variety of opportunities that exist.

- **Applications Developer:** Writes programs for technical, commercial and business users; usually works in a team to create a program to agreed specifications and produce detailed supporting documentation.
- **Artificial Intelligence Developer:** Develops computers that simulate human learning and reasoning ability.
- **Cloud Computing Engineer:** Applies computing and software development to design ways for sharing information and resources over the internet.
- **Database Administrator:** Responsible for the usage, accuracy, efficiency, security, maintenance, administration and development of an organisation's computerised databases.
- **Financial Computing Analyst:** Accurately determines the financial risk that certain financial instruments create using various computational and mathematical methods.
- **Information Systems Manager:** Works with a staff of technical specialists to provide and maintain an organisation's hardware and software technology infrastructures.
- **IT Consultant:** Gives objective advice on the best use of IT to solve business problems; clarifies client requirements, defines and presents the solutions.
- **Lecturer/Teacher:** Could teach computer science in secondary schools or college after taking a Postgraduate Certificate in Education (PGCE). Around 10% of graduates go on to further study, usually studying in greater depth through an MSc or PhD. This is essential for an academic career in higher education.
- **Mobile Computing and Software App Developer:** Develops internet applications that run on smartphones and other mobile devices.
- **Multimedia Programmer/Computer Games Developer:** Works in a team to write programs that bring together text, sound, artwork, 2D/3D modelling, animation, video and virtual reality to create a multimedia product, (eg, for websites and computer games).
- **Network Engineer:** Ensures the server and network infrastructure is maintained to maximise efficiency, involving installing and supporting new servers, hardware and software, allocating resources and providing technical support to end users.
- **Robotics Engineer:** Design, construction and application of robots and computer systems for their control, sensory feedback, and information processing.
- **Security Software Engineer:** Using programming and cryptography to design security systems.
- **Social Computing Engineer:** Develops new technologies to form and extend community networks.
- **Software Engineer:** Researches, designs, tests, implements and maintains software systems to meet client or employer needs; uses a variety of computer programming languages and applications, working in teams with other IT professionals, or alone.
- **Systems/Business Analyst:** Works with a client to improve their information systems or recommend new systems; defines the problem, finds a solution, costs it – produces a project brief and outlines design for a systems designer to develop.
- **Systems Designer:** Designs new IT systems from a technical specification, and is responsible for installation, testing and maintenance. The job can incorporate a systems analyst or consultant role.
- **Technical Support Officers:** Monitors and maintains the computer systems and networks of an organisation, installs and configures computer systems, diagnoses hardware/software faults and solves technical problems, either over the phone or face-to-face.
- **Web Designer:** Designs and codes web pages, liaises with and advises clients, creates web pages, adds content and tests the finished site.

Source: Adapted from www.prospects.ac.uk – the UK's official graduate careers website.



CASE STUDY HUNG HOANG BSc Computer Science

Why did you decide to study Computer Science?

What interested me about Computer Science was how applicable it is in modern day problems in many industries, from uses like predicting trends in stock with machine learning to developing software for rendering and post-processing 3D graphics in games and movies. There is also an exciting and diverse technology industry to explore.

What do you like about Birmingham?

I decided to study at Birmingham because after a lot of comparison and consideration,

I believe that out of all the universities I was looking at, Birmingham's Computer Science course provides the most applicable, fundamental and widely used foundational knowledge as well as giving the option to specialise in certain areas, and they do it very well. On top of all that, what really sold it for me was the department itself. The lecturers and staff are very welcoming and make me feel at home at Birmingham.

Where did you go for your Year in Industry?

For my Year in Industry I went to work as a software developer for Bloomberg LP. I've really enjoyed being part of a team, have had a lot of ownership over my work, and I can quite clearly see the effect of the work that I have worked on, which is very rewarding. It's been a really worthwhile experience and I'd recommend it.

Useful information

We welcome applications from highly motivated and well-qualified students. We understand that this is most likely an unfamiliar experience for you, therefore if you have any questions about your application please do not hesitate to contact our Computer Science Admissions Team, who will do all they can to help.

Application and admissions

How to apply

All applications for undergraduate degree programmes must be made through the Universities and Colleges Admissions Service (UCAS) using their secure online application system at www.ucas.com/students/apply

When to apply

The majority of applications to our School are received during the months of September to December each year. There is the opportunity to apply up until the middle of January, however an early application is recommended so that you can take full advantage of the Applicant Visit Days offered from November each year.

Computer Science Applicant Visit Days (AVD)
 Invitations to attend a School of Computer Science Applicant Visit Day are sent to all applicants who have been made an offer, and it is strongly recommended that you try to attend. It is a great day and an excellent opportunity to meet and ask questions of our academic staff and current students, attend subject talks, demonstrations and experience our fantastic department and campus. We also use the day to get to know our offer holders better, which can be very useful during Confirmation and Clearing. If you are offering non-standard qualifications we may ask you to attend an Applicant Visit Day before we make you an offer, so that we can gather further information in order to make a decision. We would advise that you contact us informally to discuss this first via: ug-admissions@cs.bham.ac.uk

FIND OUT MORE



About Applicant Visit Days:
[www.cs.bham.ac.uk/admissions/
undergraduate/applicant-visit-days](http://www.cs.bham.ac.uk/admissions/undergraduate/applicant-visit-days)

BSc Computer Science with Digital Technology Partnership Assessment Days

As part of our recruitment for the BSc Computer Science with Digital Technology Partnership, suitable applicants will be asked to complete a supplementary application form, and may be invited to attend an assessment day with us before a decision is made. For more information, please visit: www.birmingham.ac.uk/compsci-pwc

Scholarships

UK applicants are only considered for one of our Excellence Scholarships if they have attended an Applicant Visit Day, chosen Birmingham as their Firm Choice by 1 August, and have satisfied their offer conditions. EU and International applicants are warmly invited to attend an Applicant Visit Day, but we realise that this is most likely impractical. EU applicants are considered for the Excellence Scholarships using other means. The Scholarship Committee will meet in August and contact all successful applicants then.

Applicants applying for the BSc Computer Science with Digital Technology Partnership are not eligible for our School Scholarship.

International applicants are considered for our Achievement Bursary and Excellence Scholarships using different criteria. For further information regarding Computer Science Scholarships, please see page 26. Please contact us if you have any questions: ug-admissions@cs.bham.ac.uk +44 (0)121 415 8742.

Virtual Events

We also run regular virtual events which you are invited to take part in, and ask us any questions you might have. Sign up here: www.ug.bham.ac.uk

Campus tours

If you are unable to attend one of our AVDs, the University also offers guided tours every Tuesday and Thursday, where you will be shown around by a current Birmingham student. Places are strictly limited and need to be booked at least one week in advance. To receive an information pack or book a place, please contact Student Recruitment and Outreach.

Tel: +44 (0)121 414 3374
 Email: schools-liaison@bham.ac.uk



UCAS KEY DATES

- 1 September – Opening date for receipt by the UCAS office of applications for admission
- Mid-January* – Last date for official receipt of applications from all UK/EU students
- End of June – Last date for receipt of applications from international students

English Language requirements

If English isn't your first language you will need to offer an acceptable English language qualification. Visit: www.birmingham.ac.uk/undergraduate/requirements/international/index.aspx for a list of acceptable English language qualifications for our degrees and the latest required grades.

Coming to study with us from outside the UK?

We look forward to welcoming you if you are coming to study with us from outside the UK. Our School is a really friendly mix of people from different countries and backgrounds and is a very welcoming place. However we know that coming to a new country to study can be a little daunting, and you might have all sorts of questions you want to ask beforehand. We've got a great team of International ambassadors ready to talk to you and answer anything you'd like to ask.

Visit: www.cs.bham.ac.uk/admissions/undergraduate/international-faq

LEARN MORE



Undergraduate Admissions Team
School of Computer Science
Tel: +44 (0)121 415 8742
Email: ug-admissions@cs.bham.ac.uk
www.cs.bham.ac.uk

Our students and alumni are happy to answer any questions you might have about life and study in Computer Science at Birmingham.

Please contact us:
ug-admissions@cs.bham.ac.uk
for details of our 'New Applicant Facebook Group'

Accommodation

At Birmingham we offer a fantastic choice of living, all which provides a safe, secure and sociable start to your university experience. We have three main University accommodation 'villages', and there is plenty of privately owned student accommodation in the vicinity.

For more information on types of accommodation, applying and our Freshers Guarantee Scheme, please visit:
www.birmingham.ac.uk/study/accommodation/ug-accommodation/index.aspx



Money matters: scholarships, fees and funding

Our School is proud to offer a range of scholarships for both UK/EU and international students wishing to study for an undergraduate degree in a Computer Science subject. Scholarships are awarded to students who have, or expect to achieve, excellent academic results.

At Birmingham and in the UK, we ensure that financial barriers to entry are removed wherever possible, by offering a wide range of additional financial support packages in the form of loans, grants and scholarships.

Two of the main costs associated with undergraduate study are tuition fees and living expenses. Options are available in different forms, depending on your individual circumstances.

Financial support for UK/EU students

There are two types of student loan available; one to cover your tuition fees and the other to contribute towards your living costs.

- UK/EU students can take advantage of financial support for tuition fees offered by the Student Loans Company (www.slc.co.uk), the agency that administers grants and loans to UK/EU students in higher education in the UK.
- UK students can also apply for a Maintenance Loan (and in some cases, a Maintenance Grant) to assist with living expenses provided by the UK government. The amount you can borrow is determined by your household income and where you are intending to study (www.gov.uk/student-finance/loans-and-grants). EU students are not eligible for this and are advised to contact their home country with regards to financial support for living costs incurred whilst studying in the UK.

INFORMATION



Find out more about fees and funding by visiting: www.birmingham.ac.uk/undergraduate/fees/index.aspx

Visit www.facebook.com/SFEngland/ to keep up to date with Student Funding developments

Financial support for international students

If you are an international student, you will not be eligible for any financial assistance from the UK government. However, we recommend contacting your home country to determine if there is any financial support available for international students studying in the UK. You may also find it useful to visit: www.birmingham.ac.uk/international/students/finance/index.aspx

University scholarships, grants and bursaries

The University offers a range of additional financial support for students studying at Birmingham in the form of bursaries, grants and scholarships. For more information please visit: www.birmingham.ac.uk/undergraduate/fees/funding/index.aspx

You can also visit our 'Undergraduate Funding Database' to view funding opportunities available: www.birmingham.ac.uk/undergraduate/funding/index.aspx

Paying your tuition fees

We recognise that our students have different requirements for paying their tuition fees. This is why we are committed to providing a range of payment options to suit everyone. These will allow you to pay your fees in full before or after registration, or to spread the cost over manageable instalments by direct debit.



Please visit: www.birmingham.ac.uk/student-fees to find out more.

School of Computer Science Scholarships

We offer a number of UK/EU and international Scholarships:

UK/EU:

- Outstanding Achievement Scholarship: £3,000 award, conditional upon meeting certain criteria, which includes attending one of our Applicant Visit Days.
- Alternative options will be made for EU applicants unable to attend an Applicant Visit Day.

International:

- An Achievement Bursary of £1,500 will be awarded to all students who are categorised as overseas for fee purposes and who obtain AAA or equivalent
- An additional 'Excellence Scholarship' of £1,500 will be awarded to international students who obtain exceptional academic results (A*AA or equivalent). This Scholarship will be awarded for the first year only

Please visit: www.cs.bham.ac.uk/admissions/undergraduate/scholarships to learn more.

Please note applicants applying for the BSc Computer Science with Digital Technology Partnership are not eligible for the School Scholarship.

What our students say

'I picked Birmingham because every time I visited I felt welcomed – out of all the universities I'd visited I could see myself happily enjoying my time here. The School has some of the friendliest staff I've ever met! Whether it's coursework, programme content or just something that's interested you – they're always happy to talk.'

SAM HOLDCROFT
MSci Computer Science
with Study Abroad

'The Computer Science Department is one of the main reasons I wanted to come to Birmingham; everyone is so friendly and they really want to help you in your degree. I came on an Applicant Visit Day and felt really welcomed and at home here, and this has continued throughout my time in Birmingham.'

ELLA ROSS
BSc Computer Science with
Year in Industry

'I applied to Birmingham and was then invited to chat via Skype with a lecturer, who was really friendly and helpful. He asked if there was anything I needed to know and afterwards sent me four emails in a couple of hours highlighting what I asked for, with helpful links. That really helped me decide to choose Birmingham, as it is nice to know that even though you're moving away from everything that you know, there would be someone who would go out of their way to help!'

GWENDOLYN WONG
BSc Artificial Intelligence with
Year in Industry

'Computer Science has always felt like a friendly academic community, and what I liked about Birmingham is that when you start you are given a tutor who is able to offer advice on university life and give you academic guidance. In doing this School is taking an active interest in you to try to ensure that your experience is as good as possible, which made me feel really comfortable.'

LOUISA GOLDEN
BSc Computer Science

'The School impressed me from the beginning. The atmosphere is very warm, staff and lecturers are always friendly and you get to know students from all years, which made me feel at home. Looking back at my time so far, I feel proud to be a student at such an amazing university, which proves that I made the right decision.'

ALEXANDRA PADURARU
BSc Computer Science with
Year in Industry

'The School's staff and my fellow coursemates were incredibly welcoming when I arrived! It really did make a difference for me especially as an international student starting my life in the UK. The facilities we have are continuously improved and developed in response to feedback that we give as students, which is great.'

TSANIMIR SAKUTOV
BSc Computer Science



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This leaflet was written several months in advance of the start of the academic year. It is intended to provide prospective students with a general picture of the programmes and courses offered by the School. Please note that not all programmes or all courses are offered every year. Also, because our research is constantly exploring new areas and directions of study some courses may be discontinued and new ones offered in their place.

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