

## Natural Computation MRes

### Postgraduate degree programme in Natural Computation MRes:

The MRes in Natural Computation is a one-year full-time degree for students who have found their undergraduate study stimulating and want to learn in-depth about this emerging interdisciplinary field.

**Study here and find out why the University of Birmingham was awarded The Times and The Sunday Times University of the Year 2013-14** (<http://www.birmingham.ac.uk/news/latest/2013/09/20-sep-Birmingham-announced-as-University-of-the-Year.aspx>)

#### Course fact file

**Type of Course:** Combined research and taught, doctoral research

**Study Options:** Full time

**Duration:** 12 months

**Start date:** September

#### Contact

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#### Details

The MRes is a Masters degree by research. This means that you are taught core principles and then develop these skills by doing interesting, innovative research, supported by academic staff and peers. This is structured so that you learn how to plan, organise and manage your time; you learn what it is to be a scientific researcher; you help contribute to the development of new knowledge; you learn intellectual skills such as argumentation, exposition, and reasoning; and you develop as an individual by improving your communication skills, writing, collaborative working and creativity.

The programme is designed for highly competent students who are keen on research-oriented Masters programmes. It consists of a mini-project in the first semester and a major research project, which will be two-thirds of the entire Masters programme. You will also study essential Research Skills, and a further 20 credits of optional modules from the following list:

- Introduction to Evolutionary Computation
- Introduction to Neural Computation
- Intelligent Robotics (Extended)
- Intelligent Data Analysis (Extended)
- Planning (Extended)

#### Breakdown of course

Natural computation is the study of computational systems that use ideas and gain inspiration from natural systems, including biological, ecological and physical systems. It is an emerging interdisciplinary area in which appropriate techniques and methods are studied for dealing with large, complex, and dynamic problems. The aims of this programme are to:

1. Meet the increasing need from industry for graduates equipped with knowledge of natural computation techniques.
2. Provide a solid foundation in natural computation for graduates to pursue a research and development career in industry or to pursue further studies (e.g. PhD).
3. Give up-to-date coverage of current topics in natural computation (such as evolutionary algorithms, co-evolution, evolutionary design, nature-inspired optimisation techniques, evolutionary games, novel learning algorithms, artificial neural networks, theory of natural computation).

#### Related links

School of Computer Science website: [www.cs.bham.ac.uk](http://www.cs.bham.ac.uk) (<http://www.cs.bham.ac.uk>)

More about this programme: [www.cs.bham.ac.uk/admissions/postgraduate-taught/degree\\_info/mres-nc/index.php](http://www.cs.bham.ac.uk/admissions/postgraduate-taught/degree_info/mres-nc/index.php) ([http://www.cs.bham.ac.uk/admissions/postgraduate-taught/degree\\_info/mres-nc/index.php](http://www.cs.bham.ac.uk/admissions/postgraduate-taught/degree_info/mres-nc/index.php))

#### Fees and funding

**Standard fees** ([/postgraduate/pgt-fees/fees.aspx](http://www.cs.bham.ac.uk/admissions/postgraduate-taught/degree_info/mres-nc/index.php)) apply

Learn more about **fees and funding** ([/postgraduate/pgt-fees/index.aspx](http://www.cs.bham.ac.uk/admissions/postgraduate-taught/degree_info/mres-nc/index.php))

#### Scholarships and studentships

For information about scholarships for students on our postgraduate taught programmes visit [www.cs.bham.ac.uk/admissions/postgraduate-](http://www.cs.bham.ac.uk/admissions/postgraduate-taught/degree_info/mres-nc/index.php)

[taught/scholarships.php](http://www.cs.bham.ac.uk/admissions/postgraduate-taught/scholarships.php) (<http://www.cs.bham.ac.uk/admissions/postgraduate-taught/scholarships.php>). International students can often gain funding through overseas research scholarships, Commonwealth scholarships or their home government.

For further information contact the School directly or email [financialsupport@bham.ac.uk](mailto:financialsupport@bham.ac.uk) (<mailto:financialsupport@bham.ac.uk>)

## Entry requirements

At least an Upper Second Class (2.1) degree or an international equivalent in a Computer Science or Engineering subject with sufficiently high marks in fundamental mathematics and computing. Students who have not studied in English must pass a recognised English test. This is a highly selective Masters programme and only a limited number of places are available.

### A statement of research

The MRes in Natural Computation is research oriented, and includes two mini-projects and a summer project, written in the style of a peer-reviewed scientific journal paper. Your application should include two sides of A4 with research interests and tentative ideas that you plan to develop for these three projects. They should normally be close to the research interest of the School (please consult the web pages of [lecturers, professors and research staff](http://www.cs.bham.ac.uk/about/people/) (<http://www.cs.bham.ac.uk/about/people/>)).

Once you are admitted, you will have an opportunity to revise or change your research plans after discussion with your project supervisors. But it is important at application time to know that you are interested and have potential skills for research, as well as some tentative plans. The Statement of Research is an opportunity for you to demonstrate this.

Learn more about [entry requirements](http://www.birmingham.ac.uk/students/pg/requirements) (<http://www.birmingham.ac.uk/students/pg/requirements>).

### International students

We accept a range of qualifications from different countries – learn more about [international entry requirements](http://www.birmingham.ac.uk/students/pg/requirements/international) (<http://www.birmingham.ac.uk/students/pg/requirements/international>).

[Standard English language requirements](http://www.birmingham.ac.uk/students/pg/requirements/pgt/international/index.aspx) ([/postgraduate/requirements-pgt/international/index.aspx](http://www.birmingham.ac.uk/students/pg/requirements/pgt/international/index.aspx)) apply

## How to apply

Learn more about [applying](http://www.birmingham.ac.uk/students/courses/apply-pg/index.aspx) ([/postgraduate/courses/apply-pg/index.aspx](http://www.birmingham.ac.uk/students/courses/apply-pg/index.aspx)).

When clicking on the Apply Now button you will be directed to an application specifically designed for the programme you wish to apply for where you will create an account with the University application system and submit your application and supporting documents online. Further information regarding how to apply online can be found on the [How to apply pages](http://www.birmingham.ac.uk/students/courses/postgraduate/apply-pg/index.aspx) (<http://www.birmingham.ac.uk/students/courses/postgraduate/apply-pg/index.aspx>).

[Apply now](https://pga.bham.ac.uk/lpages/EPSo71.htm) (<https://pga.bham.ac.uk/lpages/EPSo71.htm>)

## Learning and teaching

This innovative MRes programme is led and run primarily by the world-leading [Natural Computation Group](http://www.cs.bham.ac.uk/research/groupings/natural_computation) ([http://www.cs.bham.ac.uk/research/groupings/natural\\_computation](http://www.cs.bham.ac.uk/research/groupings/natural_computation)) and [CERCIA](http://www.cercia.ac.uk) (<http://www.cercia.ac.uk>) in the School of Computer Science.

The group has over 40 full-time researchers, including teaching staff, research fellows and associates, PhD students, and academic visitors.

## Research interests of staff

## Employability

### Career opportunities

We have strong links with industry, especially through CERCIA, including Honda, BT, Thales, Unilever, GSK, Rolls Royce, etc. We encourage MRes students to carry out their research projects in collaboration with our industrial partners. Opportunities exist for students to do their project work within a company.

### University Careers Network

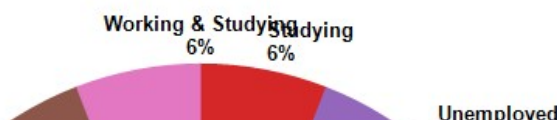
Preparation for your career should be one of the first things you think about as you start university. Whether you have a clear idea of where your future aspirations lie or want to consider the broad range of opportunities available once you have a Birmingham degree, our Careers Network can help you achieve your goal.

Our unique careers guidance service is tailored to your academic subject area, offering a specialised team (in each of the five academic colleges) who can give you expert advice. Our team source exclusive work experience opportunities to help you stand out amongst the competition, with mentoring, global internships and placements available to you. Once you have a career in your sights, one-to-one support with CVs and job applications will help give you the edge.

If you make the most of the [wide range of services](https://intranet.birmingham.ac.uk/as/employability/careers/college/eps/index.aspx) (<https://intranet.birmingham.ac.uk/as/employability/careers/college/eps/index.aspx>) you will be able to develop your career from the moment you arrive.

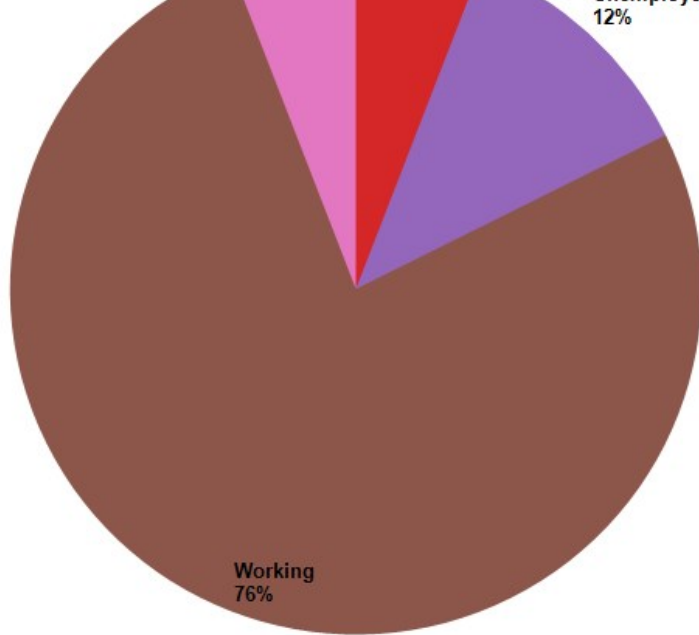
### Destinations of Leavers from Higher Education (DLHE) 2011/12 (postgraduate taught graduates)

The DLHE survey is conducted 6 months after graduation.



### Examples of employers

- Credit Suisse
- Innovise
- Atos



- BAE Systems
- Bank of America
- J.P. Morgan
- Logica
- Tessella
- Morgan Stanley
- QinetiQ

**Examples of occupations**

- Software Engineer
- Software Developer
- Technical Analyst
- Applications Developer
- Cyber Security Consultant
- Design Engineer
- Junior Programmer
- Software Consultant
- Technical Consultant
- Technology Analyst

**Further study - examples of courses**

- MSc Computer Security

- MSc International Business
- MEng Aeronautics & Astronautics
- MSc Computer Science
- MSc Artificial Intelligence
- MSc Operational Research
- MSc Imbedded Systems
- PhD - Physical Sciences in the Biomedical Imaging
- PhD - Computer Science

Visit the **Careers section of the University website** (<https://intranet.birmingham.ac.uk/as/employability/careers/college/eps/index.aspx>) for further information.

