Distinctly Ambitious
www.hw.ac.uk

Good Reasons

1. Research Quality
   We are part of world class SCSA research cluster

2. Teaching Quality
   We score well for student satisfaction

3. Employability
   We are in top 10% of UK universities for employment

4. Professionalism
   British Computer Society accredits our specialist MSc degrees

5. Prime Location
   We have a green campus on the edge of the historic city of Edinburgh

Contact
POSTGRADUATE ADMISSIONS
ROOM 1.24
EARL MOUNTBATTEN BUILDING
SCHOOL OF MATHEMATICAL &
COMPUTER SCIENCES
HERIOT-WATT UNIVERSITY, RICARTON,
EDINBURGH EH14 4AS, SCOTLAND

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+44 (0)131 451 3327
msc-request@macs.hw.ac.uk
www.macs.hw.ac.uk

Language Requirements
If your first language is not English, or your first degree was not taught in English, we’ll need to see evidence of your English language ability. The minimum requirement for English language is IELTS 6.0, TOEFL 80 (IBT) or equivalent. We offer a range of English language courses to help you meet the English language requirement prior to starting your Masters programme:
• 2 semesters English (for IELTS 4.5-5.0)
• 12 weeks English (for IELTS 5.5)
Further details can be found at www.english.hw.ac.uk

FEES, FUNDING AND SCHOLARSHIPS
Latest tuition fees are published on our fees web pages: www.hw.ac.uk/fees
We offer scholarships to well qualified applicants. Instructions on applying can be accessed from our scholarship web pages: www.scholarships.hw.ac.uk

How to Apply
You can apply by using our online application form available at: www.postgraduate.hw.ac.uk/apply
You must also provide a copy of your degree certificate and relevant academic transcripts, references from two academic sources and evidence of your English language ability. You can attach documents to the online application using the document upload facility. If you are an applicant from outside the European Union and require a visa for entry to the UK, please provide a copy of the photograph page of your current passport.

There is no official deadline for applying to the programme. However, it is always better to submit your completed application as early as possible to have a good chance of securing a place and for overseas applicants to obtain their Tier 4 student visa in sufficient time.

School of Mathematical and Computer Sciences

Artificial Intelligence
MSc / PG DIPLOMA

Full-Time / Part-Time

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Heriot-Watt University offers a superb environment for postgraduate study. We are one of the UK's leading universities, recognised internationally for excellent teaching and research in our specialist areas of science, engineering, business management, languages and textile design.

Our community of postgraduate students is made up of bright, highly imaginative and self-motivated individuals, who work closely with our forward-looking and energetic research-active academic staff. This collaborative atmosphere is fundamental to Heriot-Watt's enviable academic and research reputation.

Those of you who choose to study with us will discover high quality taught and research programmes, flexible student-centred delivery, unrivalled facilities and pioneering research.

www.macs.hw.ac.uk

Your University
an overview

www.postgraduate.hw.ac.uk/apply/

PROGRAMME BACKGROUND
The full-time MSc programme starts in mid September and lasts 1 year. The 8 taught courses can also be studied over 9 months as part of a Postgraduate Diploma programme with the same title. Students who perform at MSc level on the Postgraduate Diploma programme may transfer when it ends to the MSc programme and complete their project for an MSc degree.

Part-time study for the MSc over two years is also possible by special arrangement with the programme director. A typical arrangement would be for students to take 2 courses in semesters 1 and 2 in the first year, 2 courses in semesters 1 and 2 in the second year and split the research and implementation of the MSc project over 2 years.

PROGRAMME OBJECTIVES
The aim of this MSc programme is to impart the understanding and skills to develop intelligent software applications, such as those involving evolutionary computation and learning. Students will develop skills in specialist areas with clear applications in industry - including data mining, pattern recognition and machine learning.

The MSc project is carried out under the supervision of an individual academic who is an expert in the field. In some cases the project can be carried out in collaboration with an outside industrial or academic organisation.

PROGRAMME STRUCTURE
The first two semesters (September-May) are spent studying taught courses in artificial intelligence. At the same time research skills are developed as a preliminary for work on an MSc project. Exams take place at the end of each semester.

Full time students take 4 courses in semester 1 and 4 courses in semester 2 and must normally take courses in bold.

Semester 1
- 3D Modelling and Animation
- Artificial Intelligence & Intelligent Agents
- Data Mining & Machine Learning
- Rigorous Methods for Software Engineering
- Robotics and Automation
- Software Engineering Foundations
- Web Intelligence

Semester 2
- Biologically Inspired Computation
- Computer Games Programming
- Research Methods & Project Planning
- Software Simulation & Modelling
- Virtual Environments

3D Modelling & Animation – design and development of 3D applications with Flash, design and development of virtual actor animations with Macromedia Director

Artificial Intelligence & Intelligent Agents – search algorithms, knowledge representation, production rules, autonomous agents, main AI fields, AI applications

Biologically Inspired Computation – evolutionary and genetic algorithms, swarm intelligence, neural computation and ANN, artificial life, membrane computing

Computer Games Programming – game design, game tools, 2D and 3D, game-state, game engines, physics engines, path planning, learning and adaptation, game theory

Data Mining & Machine Learning – statistical data mining, concept and decision tree learning, neural networks, evolutionary learning, Bayesian techniques

Rigorous Methods for Software Engineering – behavioural interface specification, verification frameworks, reasoning about programs, software processes and metrics

Robotics & Automation – manufacturing paradigms, numerical control, industrial manipulators, automated guided vehicles, automation, AI planning techniques

Research Methods & Project Planning – critical thinking, doing research, academic writing, experimental design, project planning, career planning, normative issues

Software Simulation & Modelling – object oriented design and programming in Java for programmes in another language, Java GUIs, software engineering – UML

Web Intelligence – semantic web, metadata, ontologies and reasoning, XML schema, description logic, RDF, OWL, Protégé, distributed agents, web data handling

In the third semester (May-August) students undertake a specialist MSc project which is written up as a 15000 word dissertation. This project enables further development and consolidation of skills introduced in the taught courses, applying them to a challenging practical problem in this subject area.

INDUSTRIAL LINKS
We have good links with industry and MSc students may opt to do an industrially sponsored MSc project.

GRADUATE OPPORTUNITIES
Graduates from the programme can expect to be able to get employment with software houses, IT companies, research and development divisions of companies, financial services organisations, defence contractors or government IT agencies and as researchers or research students within universities.
PROFESSIONAL RECOGNITION
This MSc programme is accredited by the British Computer Society and should fulfil its further education requirements for a Chartered IT Professional. It should also partially fulfil membership requirements for the CEng and CSci professional bodies.

ASSESSMENT METHODS
Students are assessed on component courses by a mixture of exams and coursework. The MSc project is assessed by a MSc dissertation and a poster presentation.

ENTRY REQUIREMENTS
Applicants require a first or second class honours degree in computer science or its overseas equivalent. Candidates holding a little less than this may be admitted to the Postgraduate Diploma programme. If their performance is satisfactory at MSc level, they may then be recommended for transfer to the MSc.

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ARTIFICIAL INTELLIGENCE
MSc / PG DIPLOMA

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