



Master of Science Artificial Intelligence

“Just as electricity transformed almost everything 100 years ago, today I actually have a hard time thinking of an industry that I don’t think AI will transform in the next several years.” - Andrew Ng, VP & Chief Scientist at Baidu

FULL-TIME

This programme is delivered over one academic year.

Contact us

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Artificial intelligence (AI) is a field of computer science that enables computers and machines to perform tasks normally requiring human intelligence.

Its many applications range from chess-playing robots and autonomous cars to speech, image, and language processing, robotic manufacturing, and surveillance systems.

In the twenty-first century, AI has experienced a resurgence following concurrent advances in computer power, large amounts of data, and theoretical understanding. AI techniques have now become an essential part of the technology industry,

helping to solve many challenging problems in computer science.

The programme content delivers a comprehensive range of topics integral to the study of AI. These include machine learning, deep learning, natural language processing, optimisation, and big data processing to name but a few.

Graduates of the programme may also wish to continue to PhD level in this exciting field of study.

 **CORK
INSTITUTE OF
TECHNOLOGY**
INSTITIÚID TEICNEOLAÍOCHTA CHORCAÍ

Department of Computer Science

The Department of Computer Science at CIT is one of the largest Computer Science departments in Ireland. We offer a range of modern undergraduate programmes and a host of opportunities at master's degree and at PhD level.

Our industry engaged programmes match the needs of our economy and have an excellent reputation for producing the most employable computer science graduates in the region. These highly skilled graduates are in huge demand and contribute significantly to the development of the region.

Staff in the Department of Computer Science have built an excellent national and international record in the application of AI and Machine Learning research in sectors ranging from renewable energy to life science. Research funding has been provided by Science Foundation Ireland, Enterprise Ireland, Irish Research Council, Health Research Board, and the European Commission.

Artificial Intelligence (MSc)

This master's degree provides a technical deep-dive into the area of AI. The programme aims to produce AI developers with a highly relevant skillset in AI topics. As a student, you will learn how to use and develop intelligent computer systems that can learn from experience, recognise patterns in vast amounts of data and reason strategically in complex decision making situations.

Who Should Apply?

Are you an analytical thinker who enjoys working with intelligent computer systems? Do you like solving challenging problems? Have you got strong coding and mathematical skills including statistics? Would you like to know more about topics such as Machine Learning, Knowledge Representation, Metaheuristic Optimisation, Big Data Processing, Deep Learning, Decision Analytics, Research Practice and Ethics? Do you hold an honours degree in Computer Science, Engineering or in a cognate discipline? If so, this Master of Science in Artificial Intelligence degree is the right choice for you.

We make the assumption that you are currently a good programmer and that you can code proficiently using a modern high-level programming language such as Java or Python.

Programme Structure

The programme contains challenging and interesting modules delivered by lecturers who are experts in AI. You will also be presented with opportunities to work on modern research case studies linked to the domain expertise of staff in the department.

The programme places significant emphasis on student learning by doing. It adopts a practical, hands-on, approach to learning, where all modules are fully assessed using continuous assessment methods. There are no formal end of semester written examinations and this ensures that you will learn by doing from the first module to the last. This 60 credit programme is delivered over two 30 credit semesters. Each semester has a number of mandatory modules and a choice of electives (not all electives will be offered).

| Semester 1 (Autumn) | Type | Credits |
|--|-----------|---------|
| Practical Machine Learning | Mandatory | 5 |
| Knowledge Representation | Mandatory | 5 |
| Metaheuristic Optimisation | Mandatory | 5 |
| Big Data Processing | Mandatory | 5 |
| Research Practice & Ethics | Mandatory | 5 |
| Natural Language Processing | Elective | 5 |
| Recommender Systems | Elective | 5 |
| AI for Sustainability | Elective | 5 |
| Computer Simulation & Analysis | Elective | 5 |
| Free Choice Module | Elective | 5 |

| Semester 2 (Spring) | Type | Credits |
|---|-----------|---------|
| Deep Learning | Mandatory | 5 |
| Decision Analytics | Mandatory | 5 |
| AI Research Project | Mandatory | 15 |
| Robotics and Autonomous Systems | Elective | 5 |
| Planning and Scheduling | Elective | 5 |
| Fraud and Anomaly Detection | Elective | 5 |
| Free Choice Module | Elective | 5 |

Detailed module descriptors can be viewed under the Computer Science link at <http://courses.cit.ie>. You can apply for the programme online at <http://cs.cit.ie>. Recognition of Prior Learning information is available at www.cit.ie/rpl.