



# 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 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  
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## Department of Computer Science

The Department of Computer Science at Cork Institute of Technology 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 and 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. As technology plays a greater role in our society the growth in the demand for these graduates will continue year after year.

Staff in the Department of Computer Science have built an excellent national and international record in the application of Artificial Intelligence 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 programme provides a technical deep-dive into the area of Artificial Intelligence. 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? 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.

## Programme Structure

The programme contains challenging and interesting modules delivered by lecturers who are experts in Artificial Intelligence. 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 1	5
Recommender Systems	Elective 2	5
AI for Sustainability	Elective 3	5
Computer Simulation & Analysis	Elective 4	5
Free Choice Module	Elective 5	5

Semester 2 (Spring)	Type	Credits
Deep Learning	Mandatory	5
Decision Analytics	Mandatory	5
Research Project	Mandatory	15
Robotics and Autonomous Systems	Elective 1	5
Planning and Scheduling	Elective 2	5
Fraud and Anomaly Detection	Elective 3	5
Free Choice Module	Elective 4	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>.