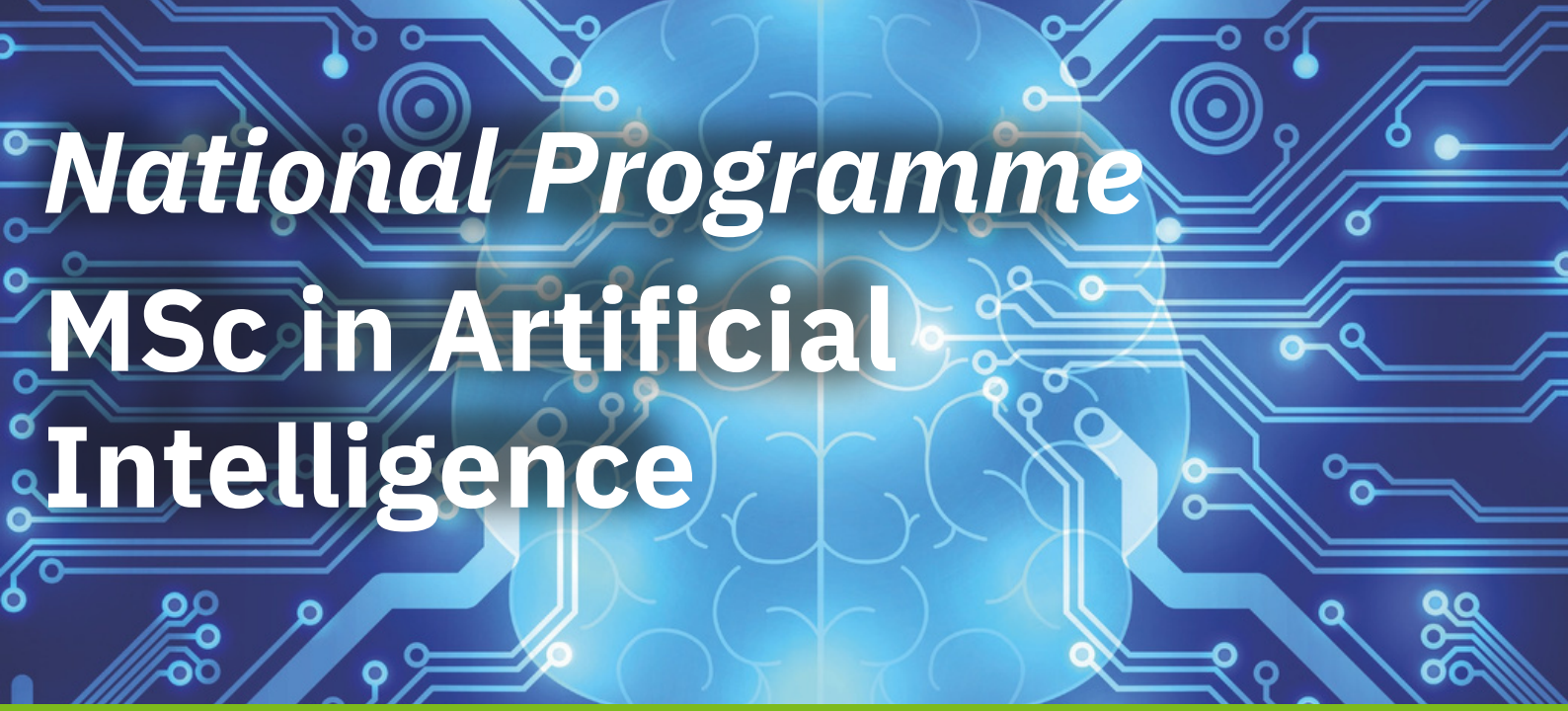

National Programme MSc in Artificial Intelligence

An exciting new two-year part-time programme to give current and potential AI engineers the skills, theory and recognition they need to develop in their role. Candidates can gain a full MSc degree in this specialist area through a mixed learning process with an emphasis on practical application in the workplace.

Programme Aim

The programme will equip participants with a knowledge-base and an advanced skillset to enable them to become highly capable experts for this strategically important sector which will in turn have a positive impact on the Irish economy. The programme is industry-led and has been developed with the support of a range of companies working in this field in Ireland. Skillnet Ireland has funded most of the development costs and the delivery costs will be part- funded both by Skillnet Ireland and the participating companies.

Programme Outline

The programme will run for two-years part-time, delivered entirely online using state-of-the-art online delivery models in which the student experience plays a central role. Assessment is largely continuous and based on assignments and project work with a practical rather than theoretical focus. Modules will be delivered as discrete entities with associated assessment of mastery so that Semester by Semester there is a confirmed and measurable achievement of learning objectives that can be transferred directly and immediately to the workplace.
In year 1, students will lay the practical and theoretical foundations for a firm understanding of AI and machine learning algorithms and workflows. Moreover, students will learn to appreciate the important ethical considerations associated with AI and machine learning and will select and start investigating a research topic.

In year 2, students will choose one of two streams each consisting of four modules:

- The Modern Machine Learning stream covers general modern machine learning with modules covering machine vision, NLP, deep learning and cloud-based tools for machine learning life cycles.
- The Natural Language Processing stream offers a specialisation in this exciting domain with four modules covering the state of the art in Natural Language Processing.

Furthermore, students will demonstrate their knowledge and skills in a research project on their chosen topic leading to a dissertation.

Programme Content

Year 1

Autumn- Cert in Artificial Intelligence	Spring	Summer
Introduction to Scientific Computing for AI	Artificial Intelligence and Machine Learning	Advanced Topics Seminars and Project Specification
Introduction to Deep Learning and Frameworks	Data Analytics	Risk, Ethics, Governance and Artificial Intelligence

Year 2: Modern Machine Learning

Autumn	Spring	Summer
Machine Learning Applications	Deep Learning	Project/Dissertation
Machine Vision	Artificial Intelligence and Data Science Ecosystems: Theory and Practice	

Year 2: Natural Language Processing

Autumn	Spring
Natural Language Processing: An Introduction	Advanced Natural Language Processing
Information Retrieval	Natural Language Understanding

Year 2: Computer Vision

Autumn	Spring
Deep Learning for Computer Vision	Geometric Computer Vision
Machine Vision and Image Processing	Natural Language Understanding & Applications

Delivered fully online, including all exams and assessments, assessment is largely based on assignments and project work with a practical rather than theoretical focus. Modules will be delivered with associated assessment of mastery so that semester by semester there is a confirmed and measurable achievement of learning objectives that can be transferred directly and immediately to the workplace.

In Year 2, students can choose to follow the Modern Machine Learning stream, Natural Language Processing stream or Computer Vision stream. A major dissertation project will be selected and specified within the first year and completed throughout the second year.

Programme Partners

The University of Limerick (UL) won the tender to develop and deliver this national MSc in Artificial Intelligence (AI) and the first intake commenced in September 2018. The programme is delivered predominantly online with some intensive workshops delivered in group sessions at sites designated by the College. In addition to the Masters course a short intensive 14 week fast-track Certificate in AI course has been developed and delivered by UL in collaboration with the Irish Centre for High-End Computing (ICHEC), Ireland's national centre for High Performance Computing.

Technology Ireland ICT Skillnet

ICHEC Irish Centre for High-end Computing

UNIVERSITY OF LIMERICK OLLSCOIL LUIMNIGH

Origination

This initiative has emerged from needs expressed by member companies of Technology Ireland ICT Skillnet augmented by research and data from IDA Ireland, Enterprise Ireland, Science Foundation Ireland and others. AI is already at the heart of many transformational business and technical applications, typically employing a combination of data analytics and machine learning. AI applications using massive datasets, powerful computing architectures and advanced learning algorithms are contributing to business growth and societal benefit in fields such as Health, Education, Finance, Telecom- munications, Leisure and Transport. New AI-enhanced services for communication, information, entertainment and social convenience are fundamentally altering the way in which society functions. This trend is set to continue and accelerate.

Companies that have supported the content development of this course include: Accenture, Advanced Metadata, Analog Devices, Citibank, Dell EMC, Emdalo Technologies, Ericsson, IBM, iMage Vision, Jaguar Land Rover, Movidius an Intel Company, Microsoft, Nokia Bell Labs, Soapbox Labs, and Valeo Vision Systems.

Click here to hear what past participants are saying

Entry Requirements

The programme is aimed at existing information technology professionals, and those migrating from associated disciplines with the necessary computing and mathematics competencies.

The principal entry requirement for both the Masters course and the Certificate Course is a Level 8 honours degree, at minimum second class honours (NFQ or other internationally recognised equivalent), in a relevant engineering, computing, mathematics, science or technology discipline. Applicants from other disciplines who have a significant mathematics or computing (i.e. programming) element in their primary degree will also be considered.

Applicants who possess an honours undergraduate degree, at minimum second-class honours, or equivalent in a non-nu-merate discipline and have a minimum of three years experiential learning in an appropriate computing discipline (with a high level of either mathematics or programming) may also apply. Their admission to the program will be determined by the University of Limerick.
Applicants who do not meet the requirements above may be considered under the University of Limerick policy that allows for the recognition of Prior Learning, both formal and informal/experiential learning; nonaccredited personal and professional education; and work based training. As this is a highly technical Masters course such applicants must have sufficient competence in mathematics and computer programming to be able to participate. The University of Limerick has sole discretion and is the final arbiter of entrants.

Applying and Further Information

The closing date for applications is 14th July 2023

Please email any queries to Technology Ireland ICT Skillnet at: **info@ictskillnet.ie**

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Technology Ireland ICT Skillnet is co-funded by Skillnet Ireland and network companies. Skillnet Ireland is funded from the National Training Fund through the Department of Further and Higher Education, Research, Innovation and Science.

An Roinn Breisoideachais agus Ardoideachais, Taighde, Nuálaíochta agus Eolaíochta
Department of Further and Higher Education, Research, Innovation and Science

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