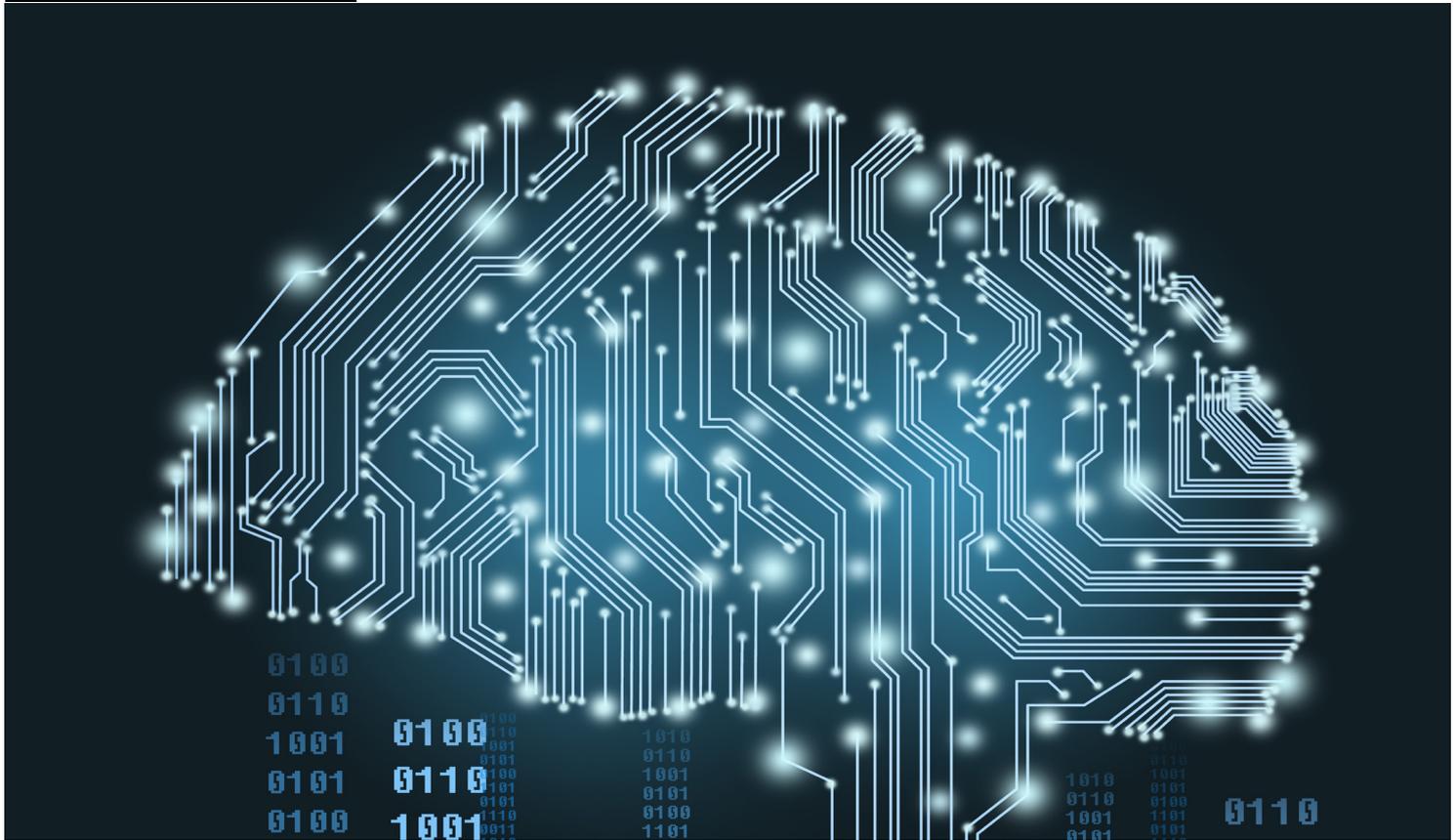


Computer Science Artificial Intelligence Technology

MSc Programme



Artificial Intelligence (AI) is currently at the center of a plethora of disruptive societal and scientific innovations and is predicted to be one of the key enabler technologies for the coming decade. Applications range from intelligent personal assistants, to self-driving cars, smart infrastructures and cities to smart industries, but also cover health, education, and legal applications. These developments are driven by artificial intelligence systems - software systems which combine data with intelligent algorithms embedded in a larger software-ecosystem of the application domain. In the Artificial Intelligence Technology (AIT) track of the Computer Science MSc programme, you will learn how to design and engineer such AI software systems.

Degree	Master of Science
Starts	September
Type	full-time
Credits	120 ECTS, 24 months
Language	English
Application deadline	<i>International BSc Degree</i> 15 January (non-EU/EFTA) 1 April (EU/EFTA) <i>Dutch BSc Degree</i> 1 July (Bridging programme*) 31 August (Direct admission)
Tuition fee	€ 18.750 (non-EU) / € 2.168 (EU)
Scholarships	scholarships.tudelft.nl

The Artificial Intelligence Technology MSc Track will cover the algorithmic foundations of AI systems, addressing topics in machine learning and intelligent algorithms, but also foundational topics in system and software engineering and data management. A wide selection of specializations allows you to cater and steer the study programme according to personal preferences, and allows to focus on chosen core technologies or application areas.

Artificial Intelligence Technology is meant for students with a keen interest in AI and who want to focus on the development and

engineering of systems using AI to solve problems from a variety of application domains.

Programme

Systems powered by artificial intelligence are one of the most promising future growth fields in IT, and applications are varied and wide-spread touching nearly all industries. The AIT MSc programme focuses on the core technologies which allow to develop such systems for various application areas.

Computer Science

Artificial Intelligence Technology

Specialisations

Algorithmics
Computer Graphics and Visualisation
Cybersecurity
Embedded Software
Interactive Intelligence
Multimedia Computing
Network Architectures and Services
Parallel and Distributed Systems
Pattern Recognition & Bioinformatics
Software Engineering
Web Information Systems

Common Core courses

Artificial Intelligence Techniques
Algorithms for Intelligent Decision Making
Conversational Agents
Deep Learning
Information Retrieval
Machine Learning 1
Multimedia Search and Recommendation
Evolutionary Algorithms
Software Architecture

For more information on all courses, please visit: www.studyguide.tudelft.nl

Smart Conversational Assistants

While voice assistants have become commonplace in many consumer devices like mobile phones or smart speakers, their functionality and capabilities are typically still limited to simple commands. Interacting with such assistants is still far from the natural and human-like interaction originally envisioned. Therefore, current research at TU Delft focuses on more sophisticated techniques for natural language processing, semantic query processing, and human-computer interaction.

Intelligent Traffic Networks

Recent advances in AI allow a novel and deeper understanding of established traffic networks like road, rails or flight networks. This can cover predicting traffic, or modelling behavior of the network under changing conditions. Using AI, current research at TU Delft uses this knowledge to optimize and control such networks, even allowing the network's operators to react to dynamic changes in real-time.

Medical Image Processing

Medical imaging techniques like for example MRI or CT are at the core of many modern medical diagnosis and treatment processes. However, current approaches are still hampered by their lacking analytical capabilities and slow processing speeds. Research at TU Delft focuses on developing new medical imaging

techniques which can be interactive and real-time, while at the same time providing stronger analytics.

Explainable and Ethically Aware AI systems

Many current AI technologies result in systems whose decisions are hard to understand and explain. This threatens the trust stakeholders and users have into those systems, and it is hard to prove that those systems indeed behave as intended. Furthermore, many AI-driven decisions like in legal or financial applications touch on delicate areas of peoples' personal lives, and thus ethical issues with respect to fairness, privacy and bias need to be considered which still poses a challenge of current systems.

Master's Thesis

The master's thesis is the final challenge concluding your studies. You will have to demonstrate your capacity to successfully carry out a research project, including planning your research vision, developing solutions, and designing and executing evaluations. Typically, a Master's thesis takes around 9 months, and is then finally publicly published and defended.

Examples of Master's Theses

- Harmonic Surface Networks
- Language-consistent Open Relation Extraction
- Algorithm for a bounded-width order acceptance and scheduling problem with sequence-depth setup time using decision diagrams