Master of Science in Artificial Intelligence [Taught and Research (Mainly be Research)]

Learning outcomes:

The core first part of the M.Sc. in AI ensures that you will:

1. Be able apply your previous knowledge from your undergraduate degree to applied intelligent computer systems.

2. Relate statistical and data theories and applications to basic intelligent systems.

3. Gain insightful and practical knowledge that will later apply to specific focuses like big data analytics, creative technologies, artificial vision and automation.

4. Acquire basic skills that will help you through the second part of the course but also to employ them in everyday life involving big data, creative technologies, artificial vision and automation.

In the second part of the course you can focus on four distinct research domains that each carries a specific programme rational and learning outcomes.

The Big Data stream focuses on a strong theoretical background in machine learning, statistics, and data mining with advanced knowledge of computational and statistical data analysis. An advanced knowledge and appreciation of non-statistical approaches to data and distributed systems and large-scale databases also forms an integral part of this stream. Finally, an appreciation of how the role of a data analyst or scientist fits into the organisational and development processes of a company is covered.

The learning outcomes for the big data stream are:

1. A highly analytical approach to problem solving;

2. Ability to extract value and insight from data;

3. Ability to analyse and critically evaluate applicability of both machine learning, statistical and data mining approaches;

4. Ability to work with big amounts of structured and unstructured data;

The Creative Technologies stream focuses on smart technologies that are becoming increasingly important for the creative industries. The skills associated with the once-separate creative and

technical worlds are beginning to overlap more and more, especially with the rise of smart interfaces and wearable devices. The scope of this Masters focus stream is to serve as a link between these two worlds thus creating professionals capable of bridging the gap which exists between the two.

You will:

1. Be prepared for a career as technology-led experts in the creative industries;

2. Learn how to design, develop and apply software in various areas of the creative industries;

3. Be aware of the fundamental concepts behind intelligent computing;

4. Have a clear sense of the issues involved in building and maintaining reliable software for the sophisticated demands of today's market;

5. Understand the social context and visual design aspects of software development.

The Artificial Vision stream focuses on the state –of-the-art techniques that extract information from images and videos. Artificial vision is proving to be crucial in various industrial applications, such as manufacturing (e.g. Visual quality inspection), entertainment (e.g. Capture body movement with Kinect sensor), robotics (e.g. Exploring a new place), health (e.g. Medical image processing), and security (e.g. Pedestrian and car tracking), among others. The need for further development of artificial vision is increasing exponentially and so are the career opportunities.

You will:

1. Gain broad knowledge on various state –of the-art algorithms

2. Understand how the visual system of the brain processes visual information

3. Understand the challenges of artificial vision algorithms in real-world applications

4. Develop hands on experience in the implementation of various algorithms using Matlab/Python

5. Develop the ability to analyse and critically evaluate applicability of artificial vision algorithms for given problems

6. Be prepared for a career in the vision-based industries

7. Have the opportunity of a research internship with another European University.

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The Automation stream offers different facets of Artificial Intelligence, bringing together aspects of Robotics, Natural Language Processing and Artificial Vision. Automation is an ever-growing industry in AI and, through this stream, you will receive applied, hands-on training in preparation to meet both industry demands, as well as gain the necessary knowledge to undertake research in this exciting field. Robot/Machine-Human interaction is becoming ubiquitous in our everyday devices.

Learning outcomes from the Automation stream are:

1. Understanding of embedded and control systems

2. Understand the technologies used by a machine to understand, process and generate language

3. Understand the technologies used in vision processing and how images can be classified

4. Be able to implement solutions to different AI problems