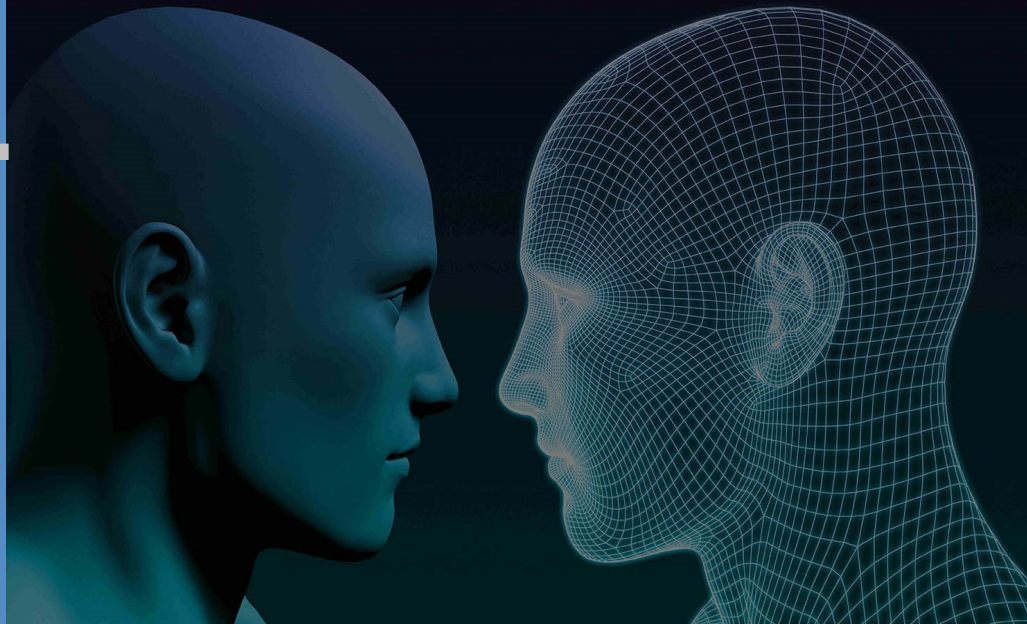


# MAI & DL

## Master in Artificial Intelligence and Deep Learning

Eighth edition. In English. Fully Online



Universidad  
de Alcalá

### VENUE

FULLY ONLINE

### LENGTH

May 2022 - March 2023

### FEE

5,900 €

### SCHOLARSHIPS

The University of Alcalá offers scholarships and flexible payment options

## Specialize in ARTIFICIAL INTELLIGENCE & DEEP LEARNING.

The Master in Artificial Intelligence and Deep Learning provides the tools to understand how Machine Intelligence works as well as to put into perspective the impact of artificial sensing, cognition and action in areas such as Finance, Engineering or Arts.

The **objectives of the Master in Artificial Intelligence and Deep Learning** consist on:

- Understanding the formal foundations of Machine Learning and its implications in human-machine interactions.
- Learning how to use high level languages in order to develop real applications based on AI as well as understanding the problems in implementing such applications in practice.
- Guiding the proposal of AI-based solutions, considering the ethical and legal aspects and the economic and social implications.

## What do we offer?

- Our Master in Artificial Intelligence and Deep Learning allows you to make your training **COMPATIBLE WITH YOUR WORK** thanks to an innovative learning methodology.
- A **SOUND PREPARATION** for a total of **60 ECTS credits**, which allows to cover in depth all the concepts and applications.
- A **METHODOLOGY** focussed on practice and context, using cases, real situations and technological tools that allow you to learn from the beginning.
- An **UPDATED CURRICULUM**, which ensures that our students are obtaining the latest knowledge in line with the trends and demands of Society.
- The **PROFESSORS** of the Master in Artificial Intelligence and Deep Learning have a mean practical experience of 15 years in the area of Artificial Intelligence. Most of them have a Ph.D.
- Study your program at the **UNIVERSITY OF ALCALÁ**, one of the best Universities in Europe.

# Programme

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## Programming in Python

- Arrays, matrices and vectors.
- Graphics.
- Program flow management.
- Interfaces and data loading.
- Programming exercises.

## Artificial Intelligence and Machine Learning

- History and Evolution of Artificial Intelligence.
- Supervised, unsupervised and reinforced Learning.
- Foundations of Machine Learning
- Machine Learning Paradigms
- Extensions

## FeedForward Networks

- Feed-Forward single-layer networks.
- Multilayer Networks.
- Backpropagation Algorithm.
- Loss functions.
- Hyper-parameters and learning strategies.

## Convolutional Networks

- Introduction to CNN
- CNN architectures.
- Object detection and semantic segmentation.
- CNN for image generation

## Sequential Networks

- Sequential and time series problems.
- Recurrent networks.
- Backpropagation through time.
- LSTM models.

## Genetic Algorithms and Evolutionary Computation

- Introduction to Evolutionary Computation
- Programming an Evolutionary Algorithm
- Introduction to Genetic Programming
- Genetic Programming: Finding the Hidden Function
- Evolutionary Machine Learning

## Unsupervised and Reinforced Learning

- Introductions to unsupervised Learning
- Association rules and Recommendation systems
- Advanced Clustering
- Introduction to reinforcement Learning
- Markov decision process
- OpenAI GYM

## Augmented Intelligence and Human Machine Interaction

- Cognitive Theories.
- Interaction design.
- Data and AI Ethics

## Seminars

- Seminars on applications of Deep Learning to the different fields

## MASTER'S THESIS

# Participant Profile

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The **Master in Artificial Intelligence and Deep Learning** targets both professionals and graduates interested on understanding the foundations and implications of Artificial Intelligence and Deep Learning in Business, Art, and Society.

Our graduated students come from **diverse countries** such as United Kingdom, Australia, United Arab Emirates, India, Netherlands, China, Germany, Saudi Arabia, Italy, Spain, Colombia, or Mexico among others.

Our students work in companies such as **Nokia, Cisco, IBM, Phillips, Indra, HSBC, Google, Accenture, Omron, Roche, Telefonica, BBVA** and **Oracle**, among others.

## Information

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To request further information to start your admission process, please contact our Admissions Department.

[masterai@uah.es](mailto:masterai@uah.es)

[www.master-artificialintelligence.com](http://www.master-artificialintelligence.com)