More Information

For more information on the study program consult

- **https://postgrau.upc.edu/ai**

Application

Enter the UPC application utility accessible from:

- **https://mastersoficials.upc.edu/preinscripcio/**

Fill out the electronic form and upload the required documents. The Academic Commission of the program will evaluate applications. Applicants will be notified about their acceptance or rejection.

Contact

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If you have any further questions feel free to contact us at any time.

Departament de Llenguatges i Sistemes Informàtics
Software Department

Interuniversity Master in Artificial Intelligence (UPC-URV-UB) and PhD in Artificial Intelligence (UPC)

UNIVERSITAT POLITÈCNICA DE CATALUNYA BARCELONATECH

Objectives

The Interuniversity Master of Science in Artificial Intelligence (MAI) is created as a synergy among the Ph.D. program on AI at UPC, the Computer Science Engineering (CS Eng.) degree at UPC and the School of Eng. at Universitat Rovira i Virgili (URV), and the Faculty of Mathematics at Universitat de Barcelona (UB).

The Postgraduate program offers high-quality education in Artificial Intelligence, leading to the Master and PhD degrees.

The Master program covers many research areas related to design, analysis and application of Artificial Intelligence techniques to undertake tasks with responsibility in industry, administration or in the academic worlds, either national or international. The Master program provides the students with the abilities of confronting problems of high technical difficulties requiring a certain degree of innovation and/or research; making decisions of strategic importance within their professional domain or continuing their education in a PhD program at the UPC, at the URV, at the UB or even abroad.

The Master's thesis offers an opportunity to apply the attained knowledge and skills for solving a challenging problem in the students' preferred area of specialization.

The PhD program provides an opportunity for young researchers to pursue a doctorate, conduct innovative research, and further the frontier of knowledge in theoretical and practical aspects of Artificial Intelligence.

Course Structure

Master Degree   120 ECTS

Basic Courses
Up to 60 ECTS shared with other UPC or URV degrees, depending on access degree and previous background. In the case that some subjects were already coursed, the student must apply for the recognition of those ECTS to complete the 60 ECTS basic courses.

Specialization courses
3 seminars at each university (3 ECTS each one) with cutting edge subjects. 21 ECTS associated to the specialization areas.

Master Thesis
30 ECTS of work, which involves a certain technological difficulty.

PhD Program

Teaching phase
Up to 60 ECTS included in the Master in Artificial Intelligence, depending on access degree and previous background, combined with research oriented courses or activities.

Research phase
Work towards a PhD Thesis. A thesis project must be presented by the end of the second academic year

Specialization Areas

Knowledge Engineering, Machine Learning and Multi-Agent Systems
Knowledge and application abilities of multi-agent systems, self-organizing agent systems, advanced techniques of machine learning, multi-criteria decision and intelligent decision support systems.

Natural Language Processing
Knowledge and abilities for the application of natural language processing for massive textual information, natural language processing for human/machine communication.

Modelling, Reasoning and Problem Solving
Knowledge and abilities for the application of computational logics for artificial intelligence, problem solving and constraint programming, fuzzy logics, mind, brain and machines, and probabilistic graphical models.

Soft Computing
Knowledge and application abilities of artificial neural computation, evolutionary computation, neural networks in finance and investing, knowledge management and data mining.

Vision, Robotics and Distributed Systems
Advanced topics in artificial vision techniques, perceptual learning, human and object recognition, industrial and cooperative robotics, simulation and data visualization and distributed systems.

Quality

The PhD program has got and kept the quality mention of the Spanish Ministry of Education since 2003.

Support

The research program is supported by the following research groups:

GPLN-UPC: Natural Language Processing group
KEMLG-UPC: Knowledge Engineering and Machine Learning Group
SOCO-UPC: Soft Computing group
ITAKA-URV: Intelligent Technologies for Advanced Knowledge Acquisition
BANZAI-URV: Research Group on Artificial Intelligence
IRCV-URV: Intelligent Robotics and Computer Vision group
ALEPH-URV: Algorithms Embedded in Physical Systems
SSAI-URV: Sensory Systems Applied to Industry
WAI-UB: Volume Visualization and Artificial Intelligence research group

Study Requirements

Bachelor/Master in Computer Science or equivalent official degree. To directly access the PhD program research phase the Master Studies should have been completed.

Knowledge of English is compulsory