



# Why Study Artificial Intelligence?

Introduction to the Bachelor of Science in AI

Claudio Cusano - University of Pavia ([claudio.cusano@unipv.it](mailto:claudio.cusano@unipv.it))

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# Three universities for one bachelor program

Thanks to the collaboration of **three outstanding universities** comes the



a bachelor program entirely devoted to **Artificial Intelligence**



UNIVERSITÀ  
DEGLI STUDI  
DI MILANO



UNIVERSITÀ  
DI PAVIA



# Why study AI?

Once a topic for science fiction, artificial intelligence has become an everyday reality



The growing need for experts in this field is not fully satisfied by existing university programs

# The project

AI is not found in bachelor programs, and is not well represented even in masters

The Bachelor of science in Artificial Intelligence is unique under many points of view

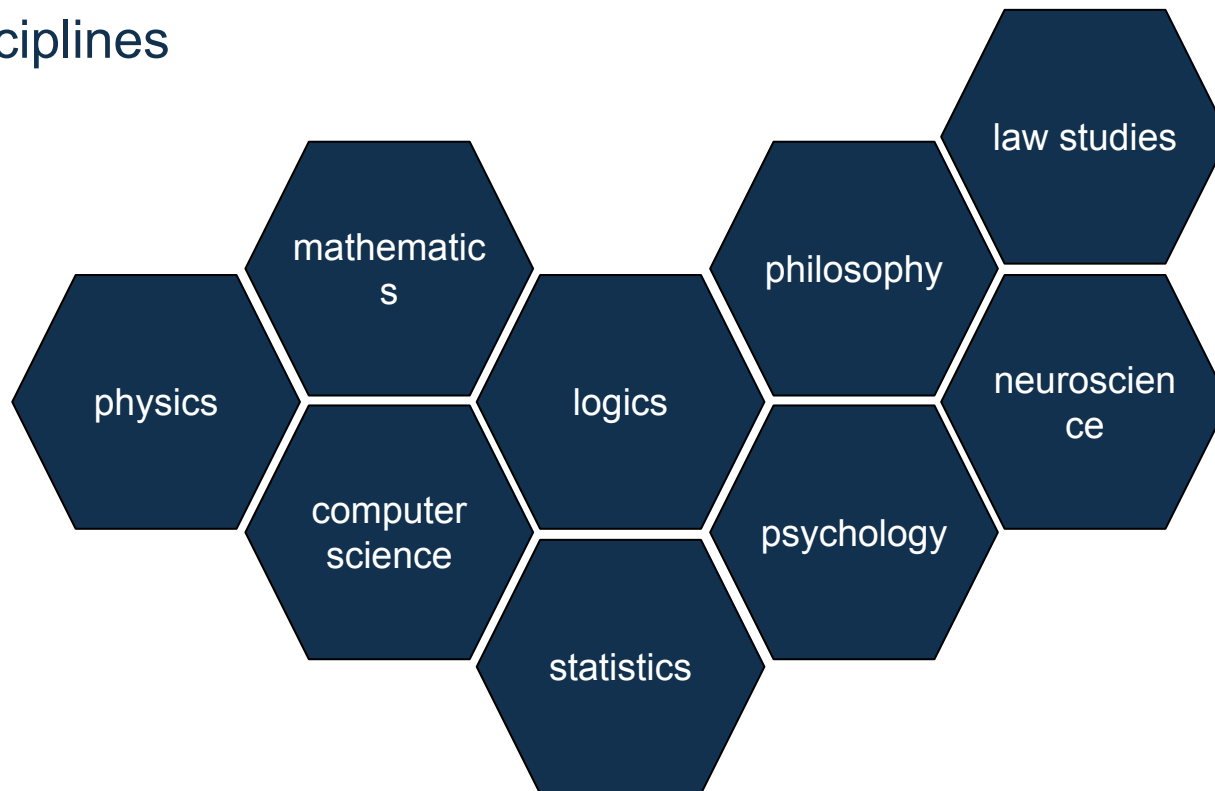
**interdisciplinary**

**inter-university**

**international**

# AI: an interdisciplinary bachelor

The program explores artificial intelligence thanks to the contribution of many disciplines



# AI: an inter-university bachelor

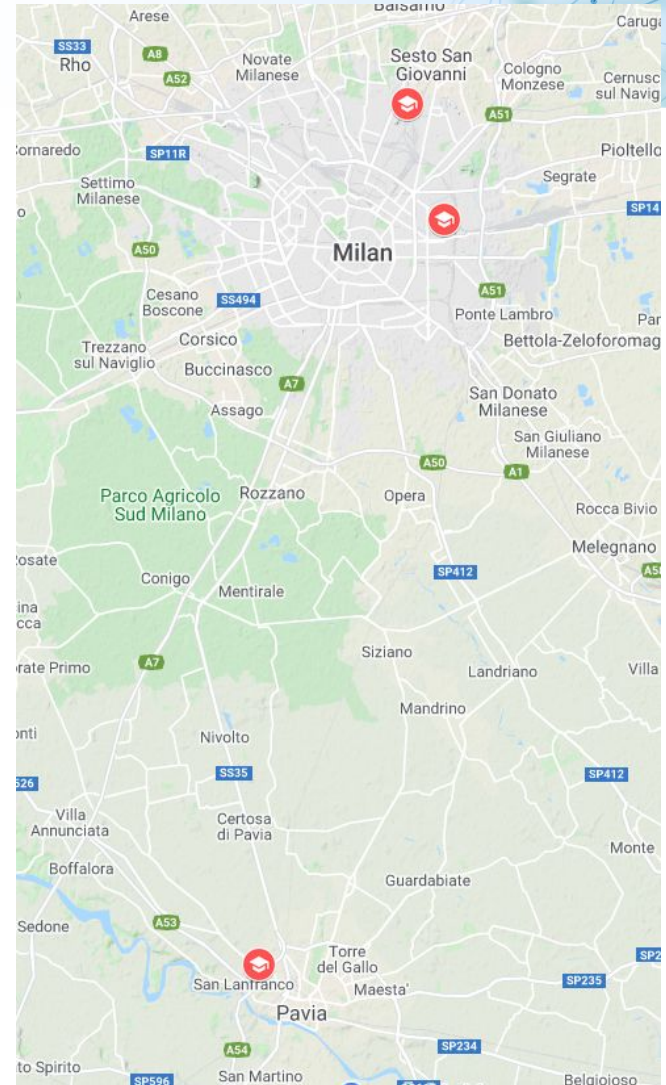
In unity, there is strength!

Teaching activities have semesters

- in Milano (Università Statale and Bicocca)
- in Pavia

A chance to live three different universities and campuses!

The administrative seat is the University of Pavia



# AI: an international bachelor

All lectures and exams are given in English

- to prepare students to be part of the professional AI community around the world
- and to create an international study environment

The course requires a solid knowledge of the language

# Future opportunities

AI expert for companies, organizations and research centers

- developer of intelligent systems
- designer of smart devices
- data analyst
- operator supporting decision making
- freelance and consulting

In various domains

- Corporate, communication, comunicazione, healthcare, manufacturing, environment...

The knowledge and skills obtained can be strengthened and consolidated by taking a **Master degree**



# **Contents and courses**

# Study plan

## First year

### First semester

Knowledge representation and reasoning

Computer programming, algorithms and data structures

Calculus

Theoretical and computational linear algebra

Computational logic

### Second semester

Experimental physics for AI

Cognitive psychology

# Study plan

## Second year

First semester

Second semester

Machine learning, artificial neural networks and deep learning

Text mining and natural language  
processing

Fuzzy systems and evolutionary  
computing

Probability and statistical inference

Theoretical and quantum Physics for AI

Ethics, law and AI

*The division in semesters is tentative*

# Study plan

## Third year

| First semester        |     | Second semester |            |
|-----------------------|-----|-----------------|------------|
| Statistical modelling |     | Elective        |            |
| Brain modelling       |     | Elective        |            |
| Track course          |     | Track course    |            |
| Track course          |     | Track course    |            |
| Lab                   | Lab | Lab             | Final exam |

*The division in semesters is tentative*

Four tracks are available  
Labs can be replaced by a stage

# Tracks

## 1) Data analysis, communication and marketing

Data mining and knowledge extraction

Information retrieval and recommender systems

Web and social networks search and analysis

Artificial intelligence for communication and marketing

## 2) Industrial systems and healthcare

Signal and image processing

Process control, industrial automation and robotics

Medical applications and health-care

Human-system interaction

# Tracks

## 3) Brain, cognition and society

Logics for practical reasoning  
and AI

AI and society

Brain-inspired neural networks and neural  
architectures

Human system interaction

## 4) Physics for AI: environment, health and quantum information

Experimental Physics 2

Imaging and spectroscopy for environment  
and health

Materials and platforms for AI

Mathematics for imaging and signal  
processing

# References

More information are available on the bachelor web site  
<http://bachelorofscience.ai>