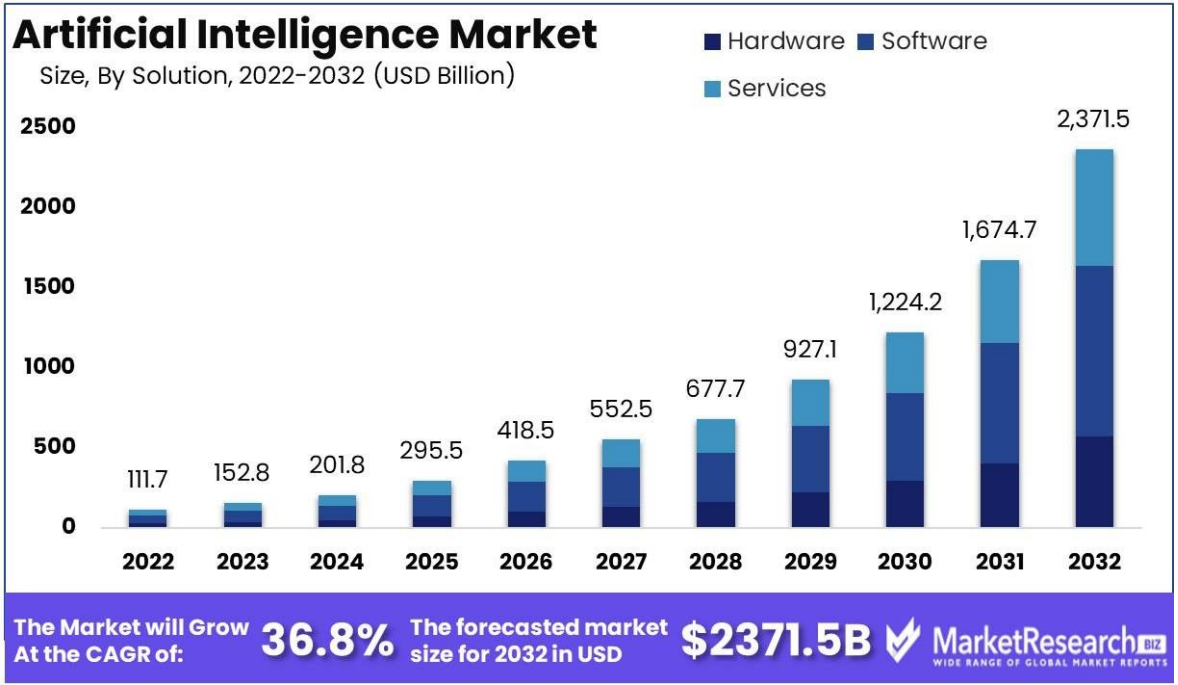
Introduction to AI

Jacopo Mauro

Why


Artificial Intelligence Market
Size, By Solution, 2022-2032 (USD Billion)
Hardware
Software
Services
2500
2000
1500
1000
500
0
111.7
152.8
201.8
295.5
418.5
552.5
677.7
927.1
1,224.2
1,674.7
2,371.5
2022
2023
2024
2025
2026
2027
2028
2029
2030
2031
2032
The Market will Grow At the CAGR of:
36.8%
The forecasted market size for 2032 in USD
$2371.5B
MarketResearch BIZ
WIDE RANGE OF GLOBAL MARKET REPORTS

Why

- AI is Everywhere: From GPS navigation and virtual assistants to autonomous cars and medical diagnostics, AI shapes our world.
- Skillset of the Future: Mastering AI opens doors to careers in cutting-edge technology and research.

Key Takeaways from This Course:

- Learn foundational concepts and advanced techniques in AI.
- Develop problem-solving skills for real-world challenges.
- Hopefully, be part of the revolution shaping the next generation of computing.

Note: It is only an Intro. Plenty of other courses will allow you to see more fancy and advance approaches (e.g., LLM, reinforcement learning, …).

Bureaucratic info

Course codes:

- AI501 - bachelor in CS + AI - 7.5 ECTS
- DS843 - master in DS - 7.5 ECTS + 2.5 ECTS of project

Teacher: Jacopo Mauro (mauro@imada.sdu.dk)

TAs:

- Jonas Vistrup (H8+H9+DS843 session)
- Carl-Gustav Rasmussen (H21)

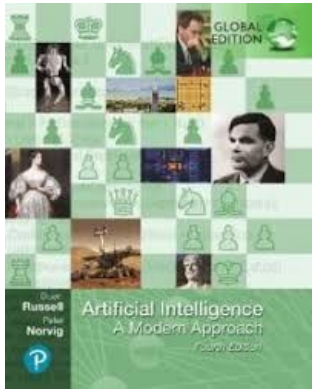
Course Highlights

Modality:

- Traditional frontal lectures (2h a week)
  - Breaks of 5 minutes so we try to finish 10 min early
- Teaching assistant (TA) sessions for exercises (2h a week)

The Book: "Artificial Intelligence: A Modern Approach" (4th Global Edition)

- No need to read the book before. Attend the lecture and then read
- No need to do exercises before. Attend TA and do exercises and then check if correct with TA



Tentative Plan

Weeks 6-7: Introduction to AI and Intelligent Agents

- Chapters 1-2-28

Weeks 8-10: Search Techniques & Games

- Chapters 3-4, 6 (Simple, Informed, and Complex Search + Adversarial Games)
    - Note that we use the Global edition of the book. The US version switches ch 5 and 6.

Weeks 12-15: Logic and Probabilistic reasoning

- Chapters 7-8, Chapter 12
- Given by Giulia Manara + Melih Kandemir

Easter

Weeks 18-21: Advance Topics + tools

- Chapters 5 (CP), 11 (AI Planning)

Exam

Written exam for all:

- Structure:
  - Simple multiple choice questions (MCQ) → to cover broadly all the notions of the course
    - 3 points for right answer, -1 for wrong answer
  - Open questions (OQ) → to go a bit more deep and require a bit of reasoning
- Grade
  - > 80% on MCQ then the grade is a combination of the weight of both parts (MCQ * 0.3 + OQ * 0.7)
  - > 60% on MCQ and pass on OQ → max grade 2
  - < 60% on MCQ or not pass on OQ → failed

Suggestion: read the chapters and the material suggested + do the exercises

Project for DS843

Group project with written report

- Up to 4 people
- Possibility to have personalized projects. For example:
  - Try to "solve" a game you love
  - Pick a chapter in the book introducing concepts/ideas useful to address a concrete problem you have and try to apply them
  - …
- If no ideas I will provide a default project (~ week 11)

Communication

- Before, during break or after lectures
- By email: mauro@imada.sdu.dk
  - If possible avoid itslearning chat (chat system is not the best)
- Drop by my office
  - https://tinyurl.com/y9rz4lyb
- Talk with your TA during TA classes