



Mansoura University
Faculty of Computers and Information
Department of Computer Science
Second Semester: 2020-2021



[CS324P] Artificial Intelligence - 1 : An Introduction
Grade: Third Year (Computer Science)

Ass. Prof. Taher Hamza

Dr. Sara El-Metwally

Faculty of Computers and Information,

Mansoura University,

Egypt.

COURSE OUTLINES

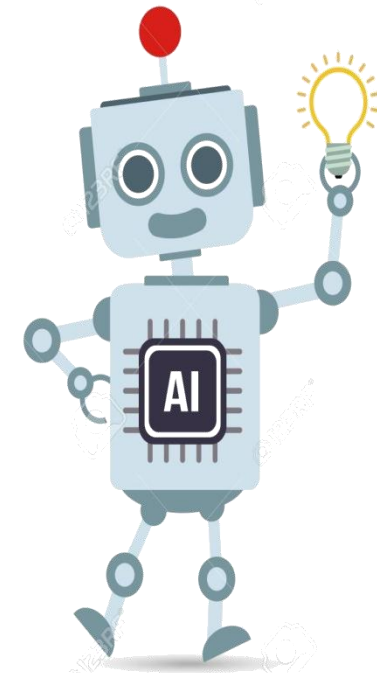
- **Course Meeting Time:** ?
- **Course Instructors:** Dr. Taher Hamza and Dr. Sara El-Metwally
- **Course TAs:** Eng. Amr El-Edkawy
- **Course Labs:** C#, Python

COURSE OUTLINES

■ Grading :

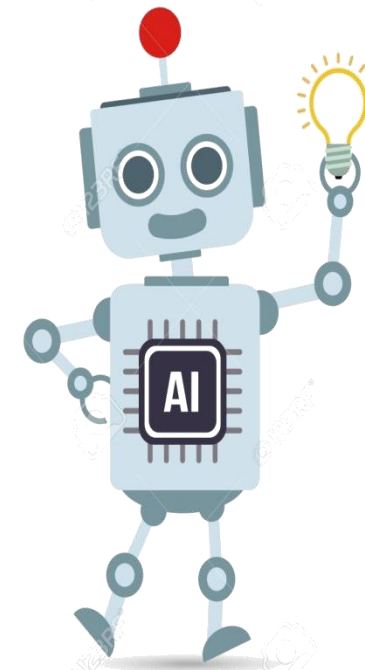
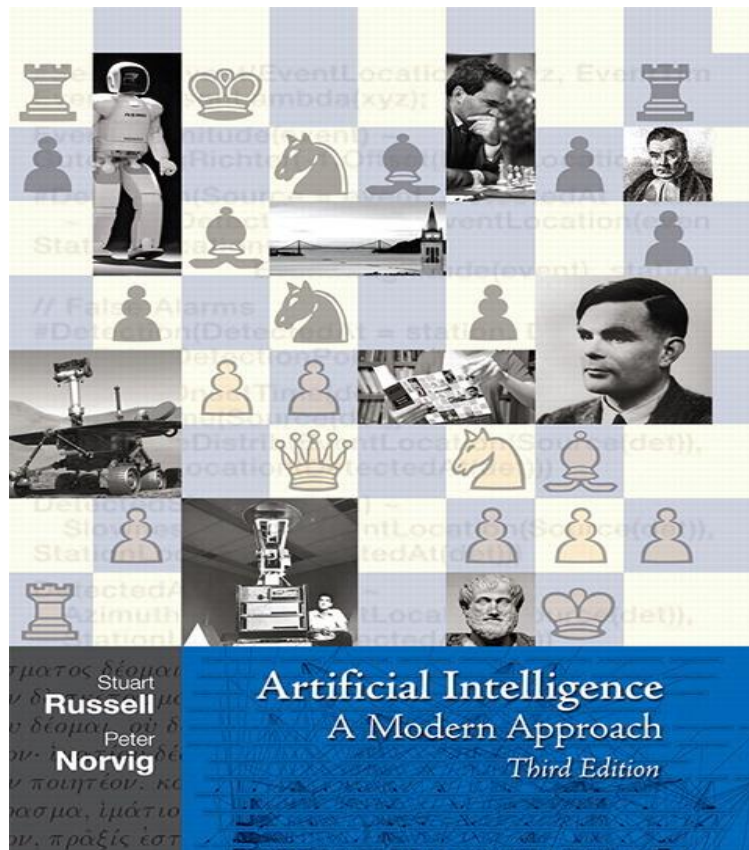
Activities	Percentages
Midterm	10%
Practical	10%
Project Course	10%
Oral	10%
Final	60%

Practical



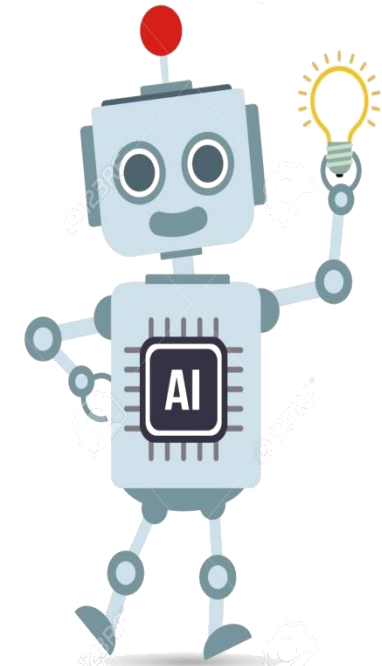
COURSE OUTLINES

■ Course Textbook:



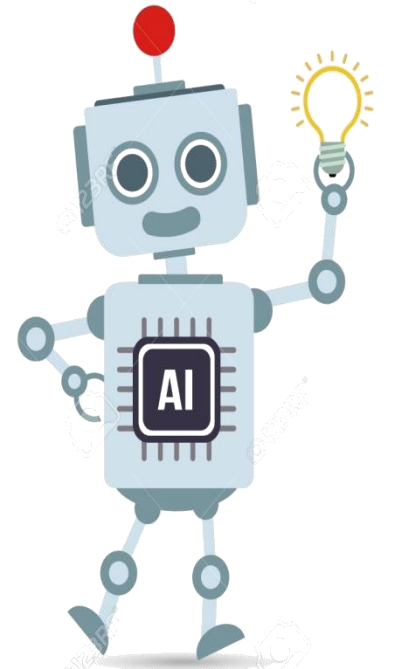
COURSE PROJECTS

1-N-puzzle	11-Monkey and banana problem
2-Route finding problems	12-The Knuth Sequence
3-N-Queens	13-Backgammon
4-Missionaries and cannibals	14-Sudoku
5-Crypto arithmetic puzzle	15-Time table scheduling problems
6-Tower of Hanoi	16-Map coloring
7-Tic-tac-toe	17-Maze
8-Travelling Salesman	18-Chess
9-Vacuum world	19-Checkers
10-Wolf-goat-cabbage	20-Pac-Man
21- Bridge	22-Knight Tour
23-Elevator	24- Containers problems



COURSE PROJECT REQUIREMENTS

- Teams (up to 3 students).
- Projects first come first taken.
- Maximum 3 repeated projects each with different implemented algorithm.
- Your Inputs is valuable (New ideas, new algorithms, machine and deep learning algorithms).
- All projects codes are available online so PLEASE DO NOT BUY YOUR PROJECT or COPY & Past it!



COURSE PROJECT REQUIREMENTS

أفكار مجنونة

بداية لفكرة لمشروع تخرج

جائزة للمركز الأول

درجات العملي والشفوي
والحضور لأحسن ثلاث
مشاريع



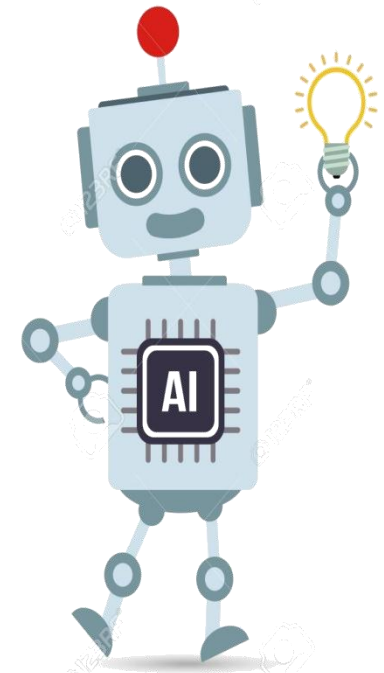
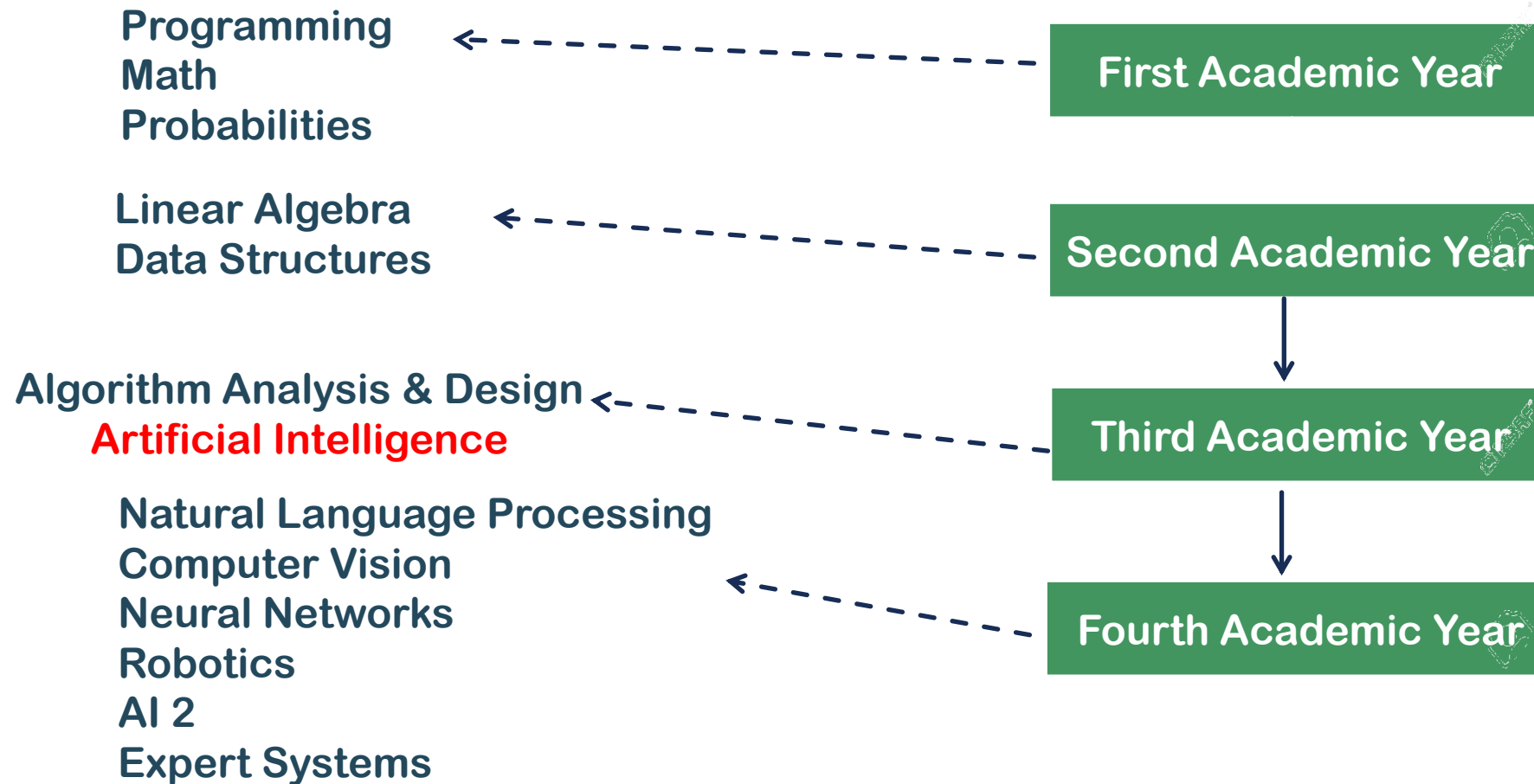
أحسن ثلاث مشاريع ليهم
شهادات تقدير

المشاركة في اي مسابقات على مستوى مصر والعالم

COURSE PROJECT REQUIREMENTS

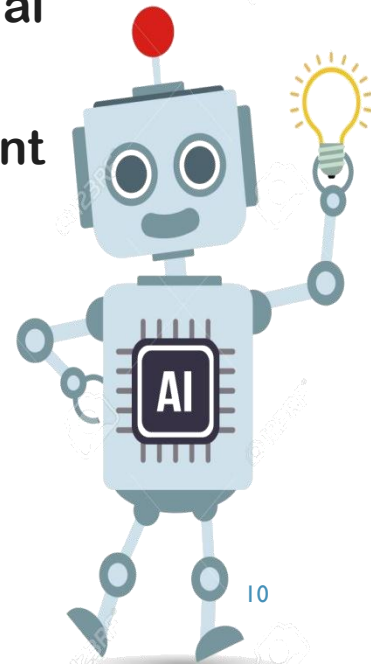
- Project Proposal (**Out**: March. 21, **Due**: April. 10).
- Project Discussions (**Lectures, Labs, random groups**)
- Project Deadline (**Final lab meeting in this semester ?**)
- Project Outcomes:
 1. A Github page that includes a Readme file that describes your project idea, algorithm, how to run and use the code and any useful links etc. and your project source code with any dependency.
 2. Your proposal should be added to your Github page.
 3. a Video demo that describe your project (English), the link should be added to your Github page and the video should be uploaded to our course channel on YouTube!
 4. Group Photo with a faculty logo.

MANSOURA FCIS COURSE DEPENDENCY

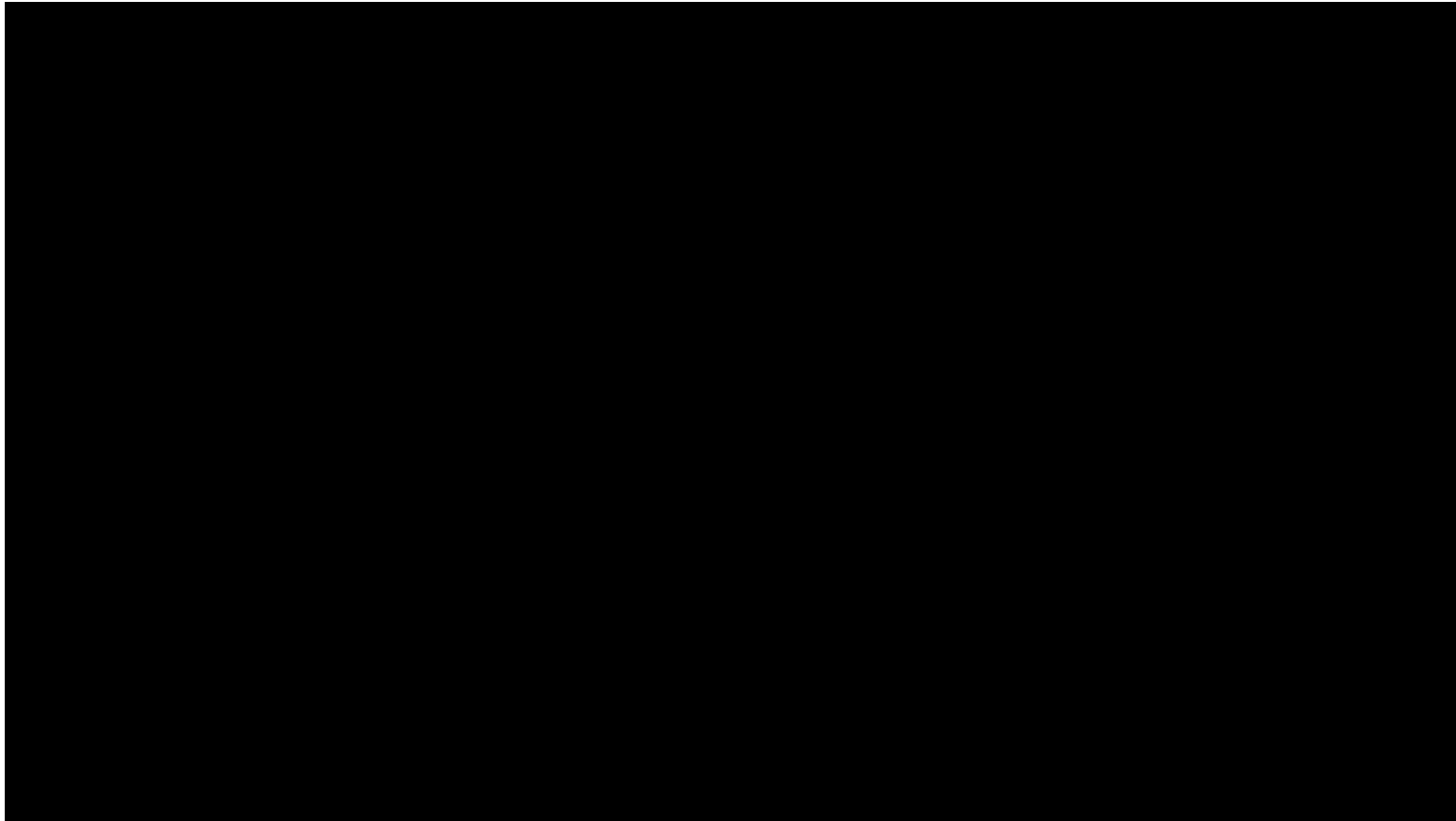


COURSE OBJECTIVES

- Gain a historical perspective of AI and its foundations.
- Become familiar with basic principles of AI toward problem solving, inference, perception, knowledge representation, and learning.
- Investigate applications of AI techniques in intelligent agents, expert systems, artificial neural networks and other machine learning models.
- Explore the current scope, potential, limitations, and implications of intelligent systems.
- Application of AI in solving real world problems.



WHY AI



Video Credit: <https://www.youtube.com/watch?v=kICBN-zI-mg>

WHY AI

- Some interesting videos:
 - https://www.youtube.com/watch?v=5tvmMX8r_OM&list=PLtBw6njQRU-rwp5__7C0oIVt26ZgjG9NI&index=1
 - <https://www.youtube.com/watch?v=l82PxsKHxYc>
 - <https://www.youtube.com/watch?v=rZufA635dq4>

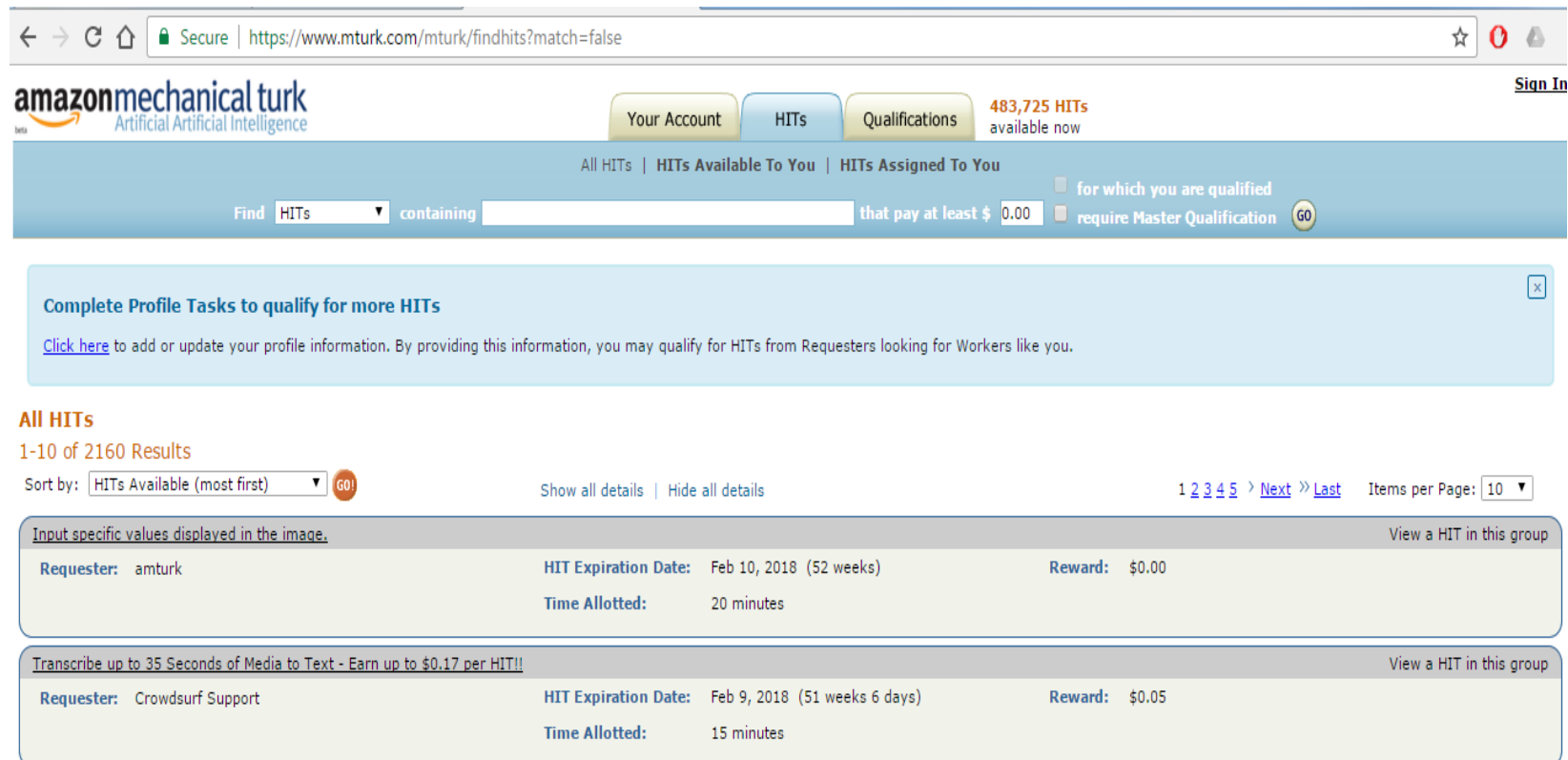
HISTORY OF AI



Image credit: https://en.wikipedia.org/wiki/The_Turk

HISTORY OF AI

Amazon Mechanical Turk (2005)



The screenshot shows the Amazon Mechanical Turk website interface. At the top, there's a navigation bar with "Your Account", "HITS", and "Qualifications" buttons. A "Sign In" link is on the right. Below the navigation bar, there's a search bar with a dropdown menu set to "HITS" and a text input field. To the right of the search bar, there's a "GO" button and a "that pay at least \$ 0.00" label. Below the search bar, there's a blue box with the text "Complete Profile Tasks to qualify for more HITs" and a link "Click here" to add or update profile information. Below this, there's a section titled "All HITs" with "1-10 of 2160 Results". The results are sorted by "HITS Available (most first)". There are two HITs listed:

Requester	HIT Expiration Date	Time Allotted	Reward
amturk	Feb 10, 2018 (52 weeks)	20 minutes	\$0.00
Crowdsurf Support	Feb 9, 2018 (51 weeks 6 days)	15 minutes	\$0.05

Image credit: <https://www.mturk.com/>

HISTORY OF AI

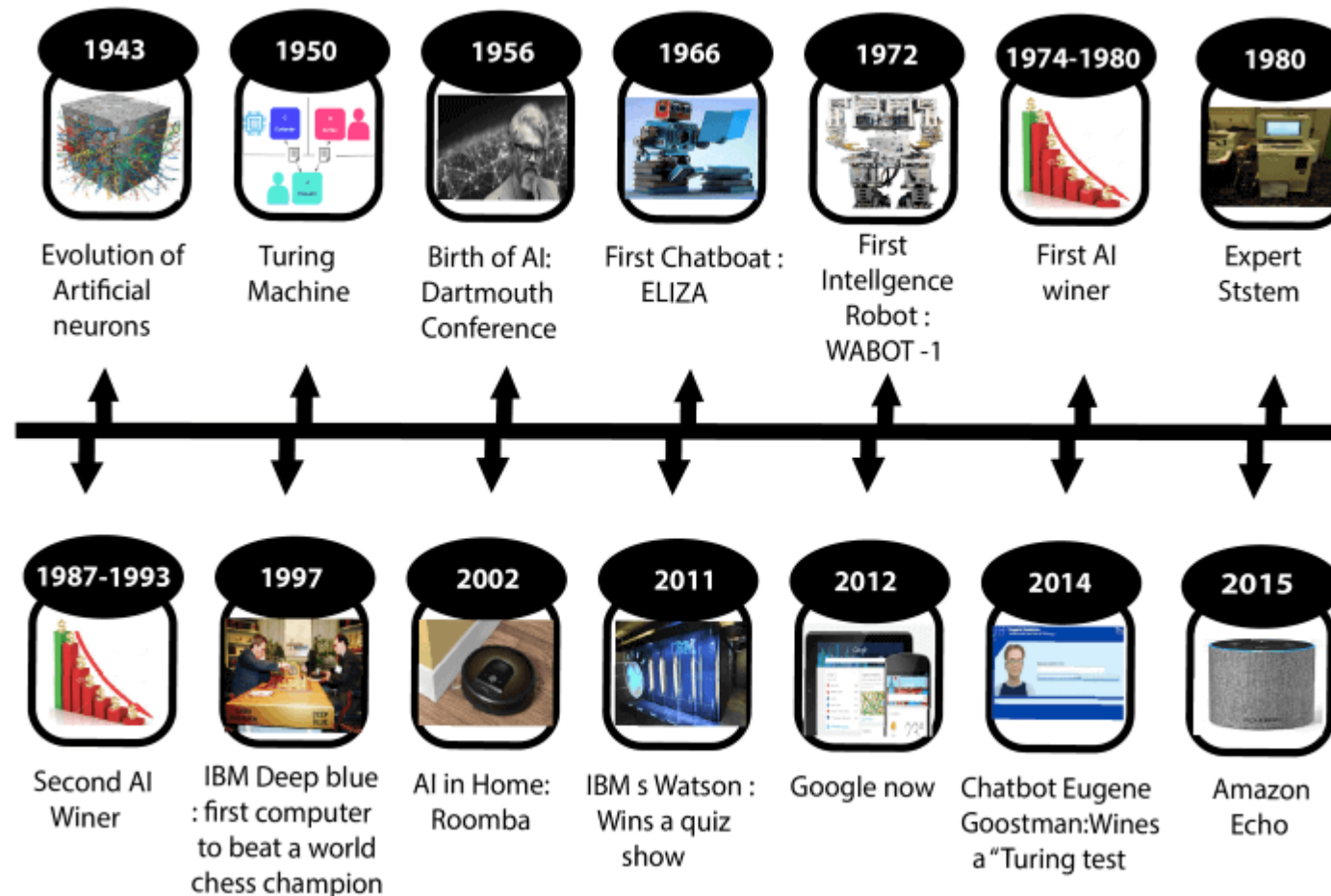


Image credit: <https://www.javatpoint.com/history-of-artificial-intelligence>

TURING TEST

- The Turing Test, proposed by Alan Turing (1950) was designed to provide a satisfactory operational definition of intelligence.
- A computer passes the test if a human interrogator, after posing some written questions, cannot tell whether the written responses come from a person or from a computer.



TURING TEST APPROACH

- **The computer would need to possess the following capabilities:**
 - Natural language processing to enable it to communicate successfully in English.
 - Knowledge representation to store what it knows or hears.
 - Automated reasoning to use the stored information to answer questions and to draw new conclusions.
 - Machine learning to adapt to new circumstances and to detect and extrapolate patterns.
 - Computer vision to perceive objects.
 - Robotics to manipulate objects and move about.

AGENT

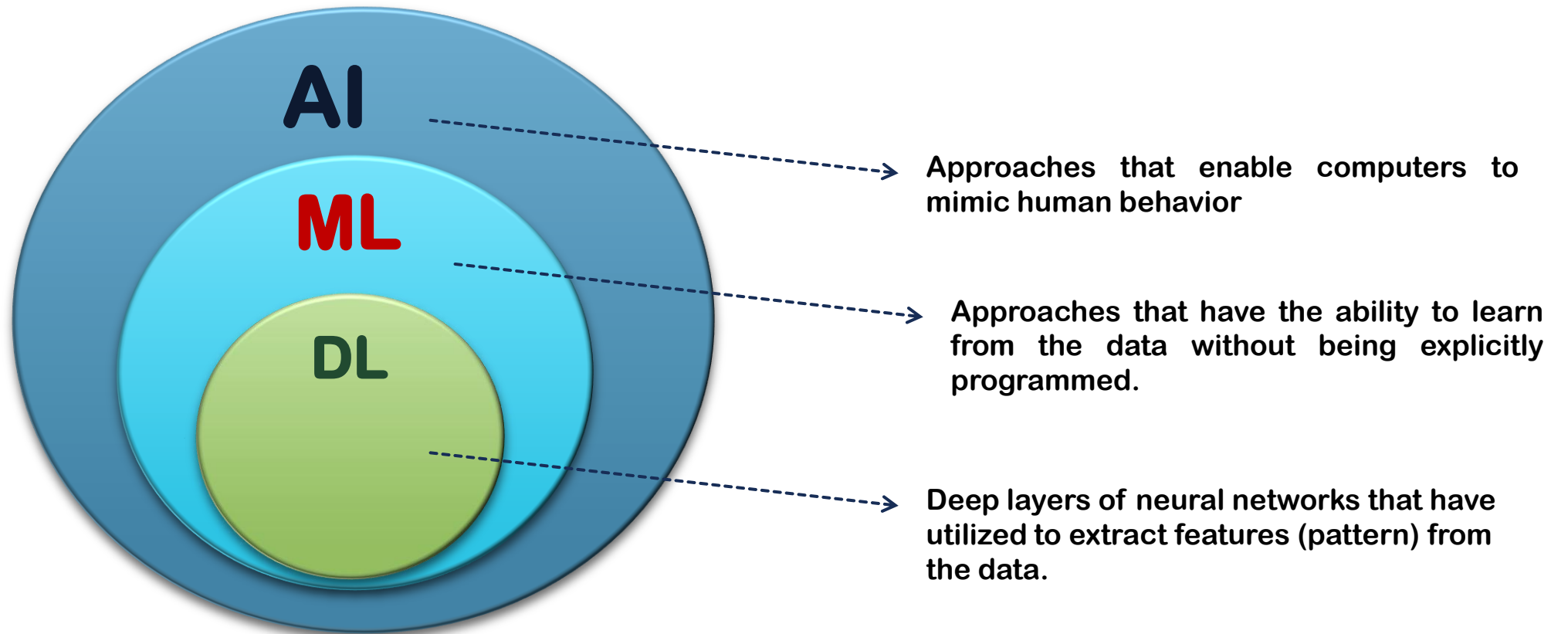
- **An agent** is just something that acts (agent comes from the Latin agere, to do).
- **A rational agent** is one that acts so as to achieve the best outcome or, when there is uncertainty, the best expected outcome.
- **Intelligence** is concerned mainly with rational action. Ideally, an intelligent agent takes the best possible action in a situation.

WHAT IS AI?

Different people approach **AI** with different goals in mind. Two important questions to ask are: Are you concerned with **thinking** or **behavior**? Do you want to **model humans** or **work from an ideal standard**?

	Human	Rationally
Think	Systems that think like humans .	Systems that think rationally .
Act	Systems that act like humans .	Systems that act like rationally .

AI



PROJECT DEMOS !

- ✓ https://www.youtube.com/watch?v=ylySi_VwArE&list=PLfpF16M7eBGP3nW8Y352OdwzNTCQoAUtC&index=11
- ✓ <https://www.youtube.com/watch?v=yK8gnjFigXc&list=PLfpF16M7eBGP3nW8Y352OdwzNTCQoAUtC&index=12>



Thank you!