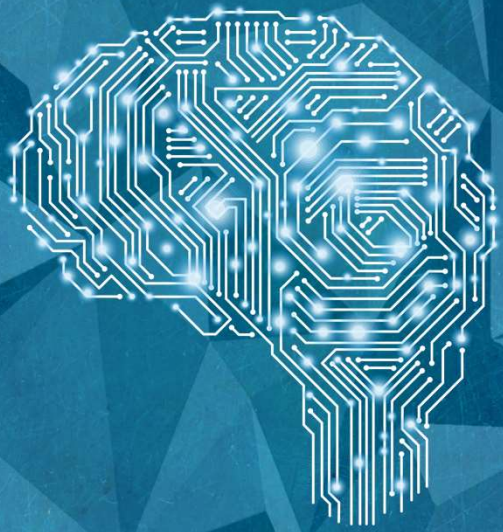
Artificial Intelligence



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Outline:

- What is AI?
- How does it work?
- Aplications
- Implementation
- Projects
- Final thoughts
- Bibliography

What is AI?

"Artificial Intelligence": term coined by John McCarthy, widely recognized as the Father of AI.

"…the science and engineering of making intelligent machines." – John McCarthy, 1950s

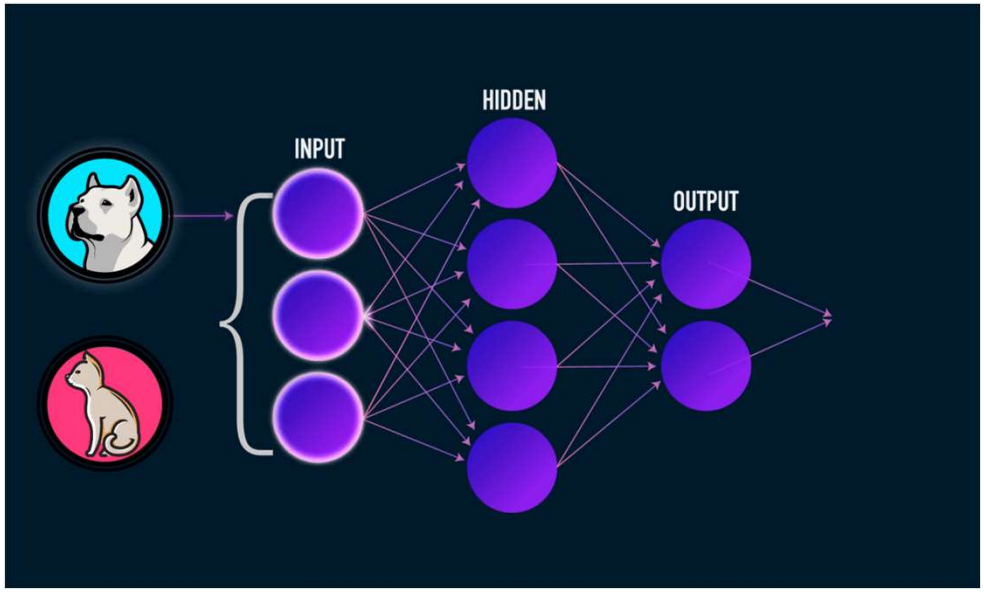
The Definitions of AI may be organized into four categories:

- Systems that think like human
- Systems that act like human
- Systems that think rationally
- Systems that act rationally

How it works?

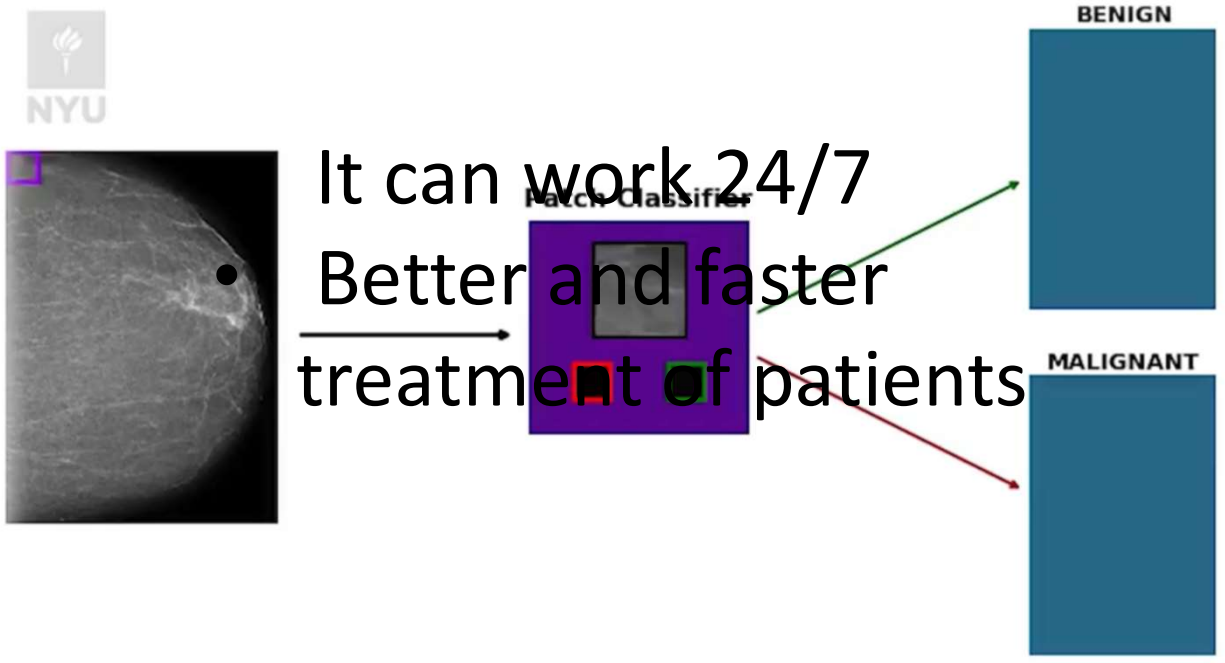
Implemented by building algorithms based on a biologically-inspired programming paradigm. It uses software and programming languages to create neural networks.:

- Neural networks consist of node layers, containing an input, hidden, and output layer.
- Combining large amounts of data with algorithms allows the AI to learn automatically from patterns.



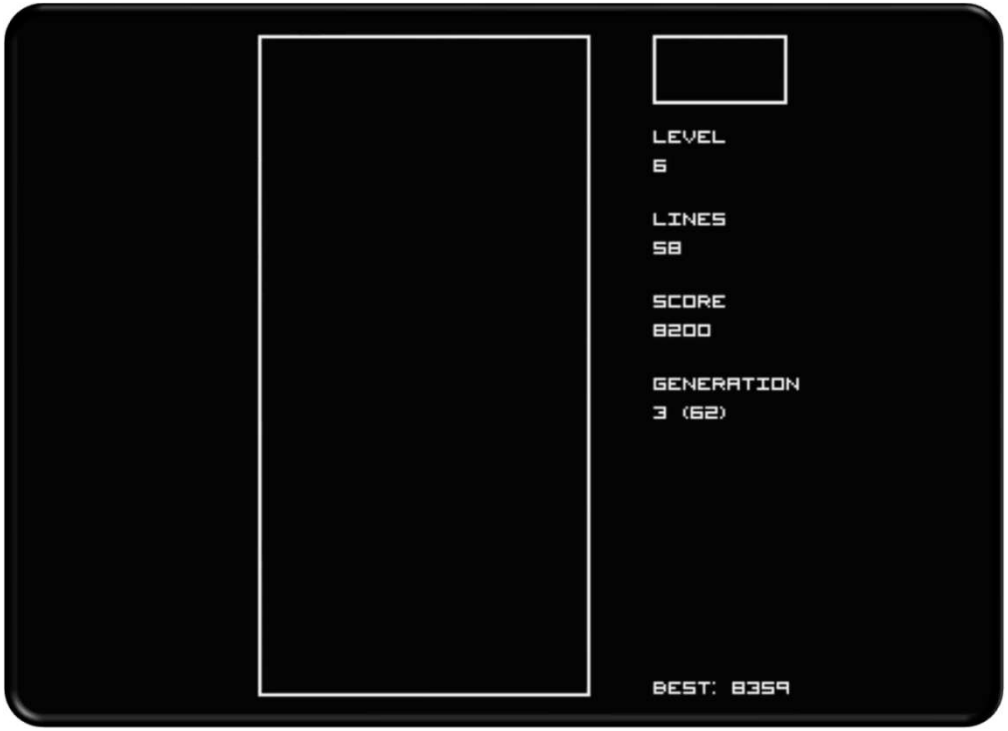
Applications

Health: Cancer Detection



- It can work 24/7
- Better and faster treatment of patients

Implementation




```python
import pygame
import random

class TetrisAI:

 def __init__(self, height, width):
   self.height = height
   self.width = width
     for i in range(height):
        new_line = []
        for j in range(width):
            new_line.append(0)
        self.field.append(new_line)

  def intersects(self):
    intersection = False
    for i in range(4):
        for j in range(4):
            if i*4+j in self.figure.image():
                if i+self.figure.y > self.height-1 or \
                   j+self.figure.x > self.width-1 or \
                   j+self.figure.x < 0 or \
                   self.field[i+self.figure.y][j+self.figure.x] > 0:
                        intersection = True
    return intersection
```

Projects

Project “SMART”: AI Moonshot Challenge
(1st edition winner)

CESAM

universidade de aveiro
centro de estudos do ambiente e do mar

Objective: forecasting and simulation of plastic accumulation in the ocean by combining Artificial Intelligence and Physics.

“Sophia” the Robot: Hanson Robotics

HANSON ROBOTICS

Objective: creating socially intelligent machines and platforms that simulate lifeforms that engage with people, for research, education, healthcare using a holistic architecture philosophy.

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Final thoughts

- “AI is the science and engineering of making intelligent machines.”
- Software and biologically-inspired programming to create neural networks.
- Versatile! Multiple applications: Healthcare, Lifestyle, Security, etc…
- Self-Learning: improves its interpretation of data as time progresses .
- A growing interest in this technology! More worldwide projects everyday!

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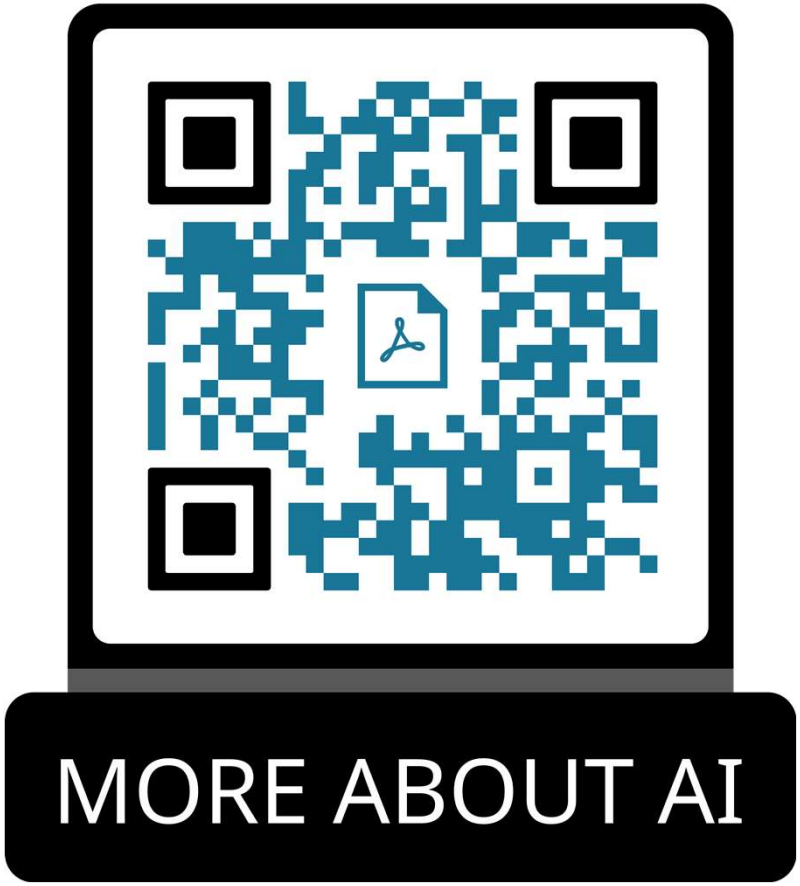

Thank you!

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