INSTIUTO TECNOLOGICO DE ESTUDIOS SUPERIORES DE MONTERREY



**Intelligent Systems:**

“Number recognition with neural network”

Jose Carlos Pacheco Sánchez – A01702828

*ITESM- Qro - 2021*

**CONTENT TABLE:**

Cover page………………………………………………………………………………...1

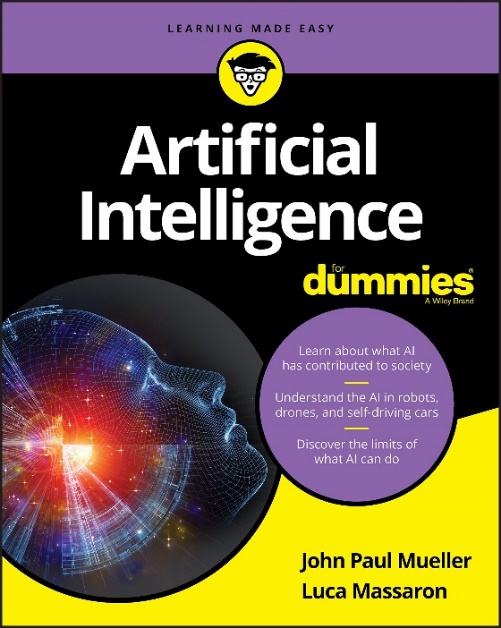
Content table………………………………………………………………………………2

General concepts………………………………………………………………………….3

Starting ……………………………………………………………………………………4

Understanding the path……………………………………………………………………4

GENERAL CONCEPTS:

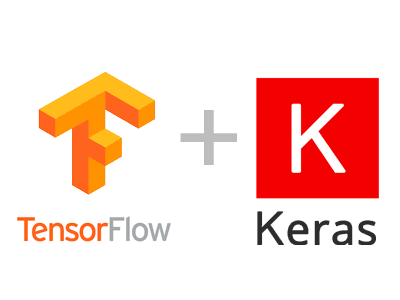
First, we need to identify what is Image recognition and for what is used for:

*“Optical Character Recognition is a process of digitizing texts from images of symbols or characters that belong to a certain alphabet.”* This means that thanks to this, the data can be identified and stored from the images and thus be able to interact with these characters.

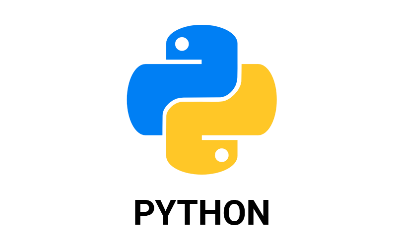
Knowing this, we can think in many and different applications on this specific field, but What do we use to do something like that?

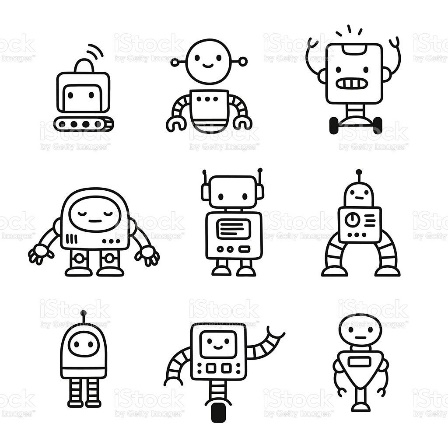
The answer is kind strange but simple: *Artificial neural networks* or more know as neural networks, they are based on a collection of connected units or nodes called artificial neurons, which loosely model the neurons in a biological brain. Each connection, like the synapses in a biological brain, can transmit a signal to other neurons.

There are many applications for this filed, from easy recognition, text or cancer detection, In this project we will go through an especially useful and relatively simple point: image recognition, more specifically number recognition

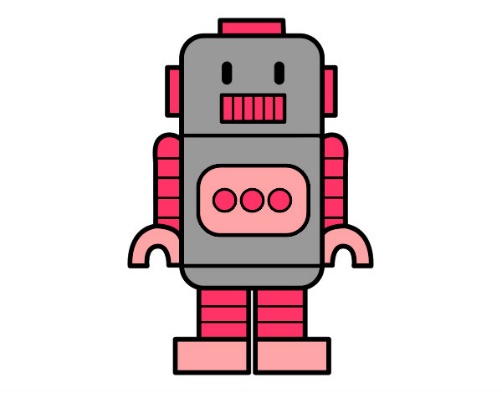


To do this we will use two specific tools, Python and keras TensorFlow framework



STARTING:

To achieve all this, we need to have a little notion of how neural networks work and more specifically what is the general process of learning. Roughly the creation of a neural network is like the construction of a robot, the first thing we will use will be the pieces to be able to assemble it, for its just having the notion that a robot has a body, arms, and a head; of course, there will always be variants and different ways of putting them in a specific order.



In this case we will be using a template that we know that it works. The process will look like this

1.- Receive a handwritten number as input

2.- Process the neuronal network

3.- As output it will give us the number that represents

UNDERSTADNIN THE PATH:

But how can we do this if its not a real person? It’s a program..

We are going to take

REFERENCES: