AI WEEK

June 30, 2021

AI WORKSHOP

A workshop introducing the basics of Artificial Intelligence

Today's Agenda

1. demo of the build
2. Explain the Network build
3. Get started with the build
4. Summary and closing remarks

Introduction

I will be your facilitator for this workshop

I am a Ph.D. student at Florida Tech in Computer Science. My domain of research is Robotic Intelligence

Josias Moukpe

Icebreaker

Before we start with the session, let's warm up a little with this icebreaker question:

What did you have for breakfast today?

Let's get cracking!

Let's begin.

Dependency Installations

Dependency

NodeJS

Node.js is an open-source, cross-platform, back-end JavaScript runtime environment that runs on the V8 engine and executes JavaScript code outside a web browser.

Git

Git is software for tracking changes in any set of files, usually used for coordinating work among programmers collaboratively developing source code during software development.

Links

nodejs.org/en/

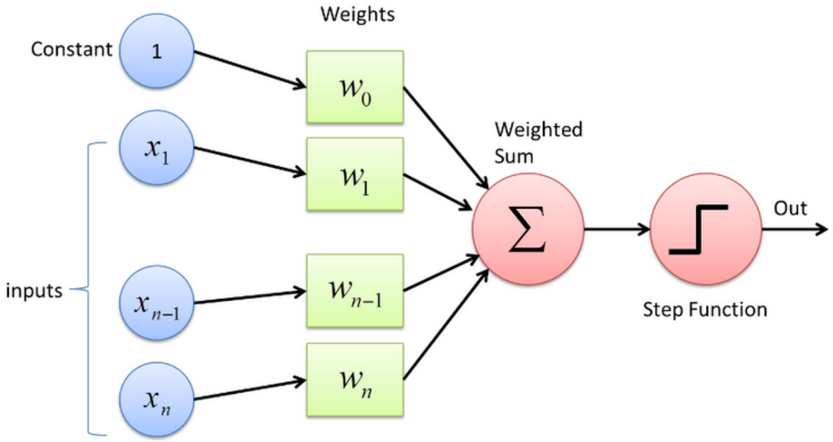
git-scm.com/

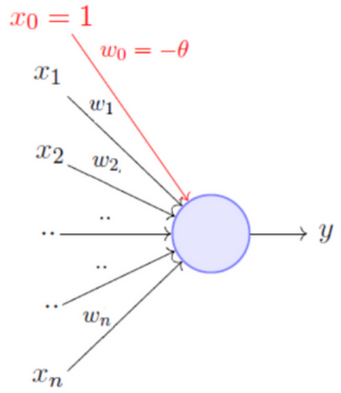
Demo Run Instructions

1. Download and Install the dependencies on previous slide
2. Git clone https://github.com/Machine-Earning/perceptron-ai-week.git
3. Open the perceptron-ai-week folder with your favorite text editor (vscode, nodepad++, etc)
4. Open your node terminal and run "node server.js"
5. Open your web browser on "localhost:8080"

Perceptron Explained

A Perceptron is an algorithm used for supervised learning of binary classifiers. Binary classifiers decide whether an input, usually represented by a series of vectors, belongs to a specific class.
In short, a perceptron is a single-layer neural network. They consist of four main parts including input values, weights and bias, net sum, and an activation function.





A more accepted convention,

$$y = 1 \quad if \sum_{i=0}^{n} w_i * x_i \geq 0$$

$$= 0 \quad if \sum_{i=0}^{n} w_i * x_i < 0$$

$$where, \quad x_0 = 1 \quad and \quad w_0 = -\theta$$

General Approach to building AI

1. Gather and pre-process the data to learn from
2. Design and Architect the model
3. Train the model on the data and adjust training hyperparameters if necessary
4. Test the network on new data and reiterated the design
5. Once a satisfactory performance is achieved, deploy the network

That's a wrap! Let's now explore the code...

Sources and Further Reading

https://deepai.org/machine-learning-glossary-and-terms/perceptron
https://www.codeproject.com/Articles/4047091/The-Math-behind-Neural-Networks-Part-1-The-Rosenbl
https://towardsdatascience.com/perceptron-learning-algorithm-d5db0deab975
https://youtube.com/playlist?list=PLZHQObOWTQDNU6R1_67000Dx_ZCJB-3pi