FACILITATE-AI

GUIDELINES FOR FACILITATING THE LEARNING OF ARTIFICIAL INTELLIGENCE BY SCHOOL STUDENTS OF GRADES 7-12

Part D: Module 4: **Practicum: Implementation by trainees**

Guidelines for facilitating the learning of Artificial Intelligence (AI) by School Students of Grades 7-12

Project Number: 2021-1-CY01-KA220-SCH-000032567

ITC MORANTE
DOUKAS SCHOOL
PLOVID UNIVERSITY

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Group: ITC – UPLOVDIV – DOUKAS

- AI For Oceans

- Simplified Algorithm for Image Recognition

- Slice of Machine Learning

- Teachable Machine: Image-Audio-Pose

Activity 1: AI For Oceans

The Game: https://studio.code.org/s/oceans/lessons/1/levels/2
The Learning Plan: https://curriculum.code.org/hoc/plugged/9/

The idea: Ecology and AI
Explore how AI and machine learning can be used to address world problems.

1. The students have to find the most polluted places in the oceans and have to collect some pictures of polluted places.
2. What is Machine Learning
3. The students train the robot to recognize the trash by using machine LEARNING by images.

Dive into machine learning with AI for Oceans


Is this a fish?
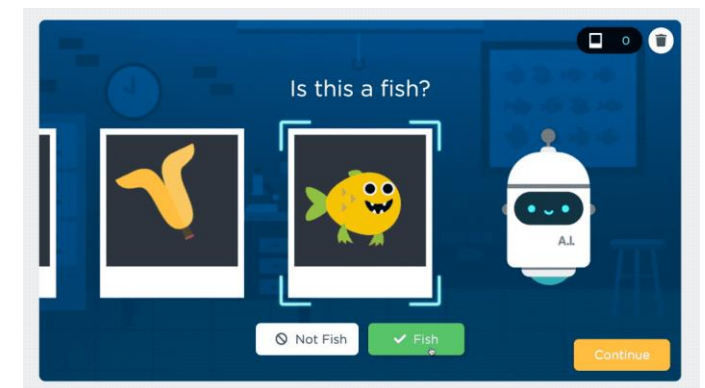
Presentation: Image Recognition

The activity is helping the student to understand how a simplified algorithm for image recognition works and the general architecture of a Neural Network*.
The students are divided in groups and each group will add as one of the layers of the Neural Network.

NOTE: the scope is not to teach a real algorithm, which is way more complex.

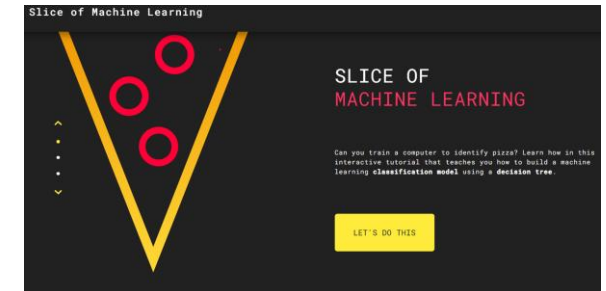*The NN image is purely a graphical representation
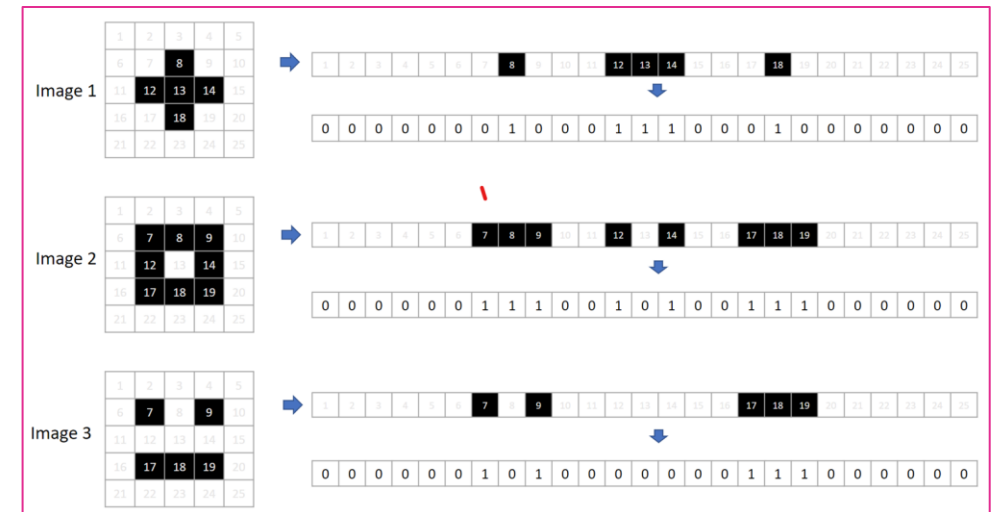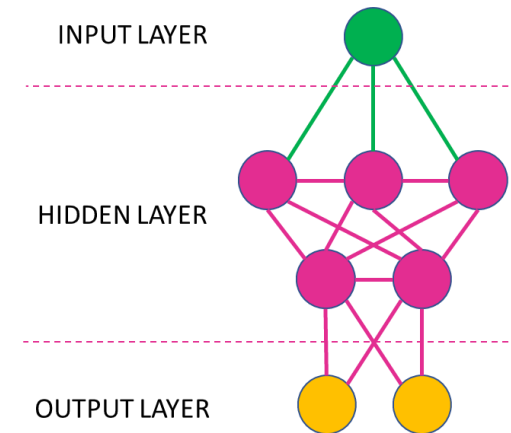
Application: Slice of Machine Learning

Slice of Machine Learning shows how AI can analyze training objects (e.g. like a pizza) and make decisions based on criteria in a decision tree. Once they have completed the activity, they can review the main acquired concepts:

- The AI tool is called a classifier.
- What are a data set, different use of training set and test set, overfitting, accuracy target
- This simple activity can also be use to collect feedbacks about the competence acquired so far

The features used in nodes and the order of the questions in the nodes and branches affect the accuracy of the AI's ability to decide if an item is a pizza.

Application: Teachable Machine

"Teachable Machine" is a tool for easy **recognizing images, sounds, and poses, in three steps:**

1. Gather and group examples into classes, or categories.
2. Train the model, then instantly test it out to see whether it can correctly classify new examples.
3. Export the model for any use (e.g. at websites)

Image Project

Teach based on images, from files or your webcam.
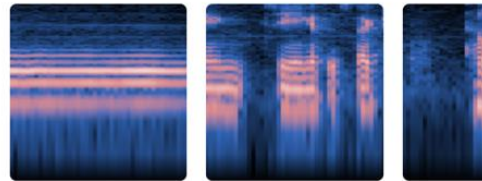
Audio Project

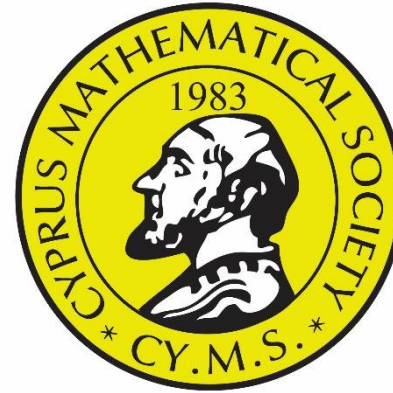Teach based on one-second-long sounds, from files or your microphone.

Pose Project

Teach based on images, from files or your webcam.

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