Machine Learning For Kids :: Teachers' notes

Worksheet	Semaphores
Activity	Make a voice-controlled game that you play by moving your arms
Objective	**Use a computer that has been trained to recognise the way your arms are pointed** • Learn how computers can be trained to recognise poses **Teach a computer to recognise sounds** • Learn how computers can be trained to recognise words
Difficulty level	Advanced
Time estimate	1 hour
Summary	Students train a speech recognition model to recognize a few commands. They will make a Scratch project with performs an action when that command is heard. They will use a pre-trained pose detection model that can draw a semaphore from the way their arms are seen in the webcam.
Topics	image classification, supervised learning

Setup

Each student will need:

Print-outs	Project worksheet (download from https://machinelearningforkids.co.uk/worksheets) Blocks in Scratch scripts are colour-coded, so printing in colour will make it easier for students.
Technology	Web-cam

Class account will need:

API keys	None

Customizing

If you use **PRIMM** approaches with your class, add a step where students predict how the project template works.
If you want to **increase the amount of coding** involved, delete some of the code from the project template and add steps to the worksheet so students code it themselves.
If you want to **encourage problem solving**, delete some of the detail in the worksheets and provide more general instructions instead.
Project template files & worksheets in MS Word format are available so you can **modify them to suit your class**.

Project templates	https://github.com/IBM/taxinomitis-docs/tree/master/scratch-templates
Worksheets	https://github.com/IBM/taxinomitis-docs/tree/master/project-worksheets/msword

Help

Potential issues	• Videos/photos taken by the webcam for this project are not uploaded to anywhere and will not leave their computer. All of the analysis is performed in the web browser. • "https://machinelearningforkids.co.uk" is a long URL to type for some children. You may find it easier to set up a bookmark that they can click on instead. General troubleshooting and help at https://machinelearningforkids.co.uk/help