Machine Learning For Kids :: Teachers' notes

Worksheet	Shy Panda
Activity	Make a character in Scratch that stops dancing if it recognises you looking at it
Objective	**Teach a computer to recognise pictures** • Learn how computers can be trained to recognise an object
Difficulty level	Beginner
Time estimate	45 minutes
Summary	Students train a machine learning model to recognise pictures by taking photos of their face with a webcam. They use this in Scratch to make a character that recognises what they're doing.
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
Access	Username and password for machinelearningforkids.co.uk

Class account will need:

API keys	**Watson Visual Recognition** - 1 custom model per student One "Lite" API key is free but can only be used to create 2 custom models One "Standard" API key can be used to create to create multiple custom models more detail at: https://github.com/IBM/taxinomitis-docs/raw/master/docs/pdf/machinelearningforkids-apikeys.pdf

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**.

Template	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	• Students will be taking photos of their face and uploading them to a secure site, where they are kept until their photo or project is deleted. If this raises concerns it may be sensible to obtain parental permission. • Machine learning models can sometimes take up to 5 minutes to train. It is okay for students to work on their Scratch projects during this time, rather than wait for this to complete first. • "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