Machine Learning For Kids :: Teachers' notes

Worksheet	Chameleon
Activity	Make a chameleon in Scratch that changes colour to match its background.
Objective	**Teach a computer to recognise colours** • Learn how computers can be trained to recognise the predominant colour of an object
Difficulty level	Beginner
Time estimate	1 hour
Summary	Students will train a machine learning model to recognise colours by taking pictures of coloured objects with a computer webcam. They will use this in Scratch to make a character that recognises the colour and changes costume to match.
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/dalelane/ml-for-kids/raw/master/doc/machinelearningforkids-apikeys.pdf

Help

Potential issues	• Students will be taking photos and uploading them to a secure site, where they are kept until their photo or project is deleted. As long as only the objects are visible in photos they take, then students will not be identifiable from this. 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