Machine Learning For Kids :: Teachers' notes

Worksheet	Car or Cup
Activity	Train the computer to be able to sort photos into groups.
Objective	**Teach a computer to recognise pictures of objects** • How computers can be trained to recognise pictures. • The important of variety in training machine learning systems.
Difficulty level	Beginner
Time estimate	45 minutes
Summary	Students will train a machine learning model to recognise pictures of cars or cups. They will use this to make a project in Scratch that sorts a pile of photos into two groups.
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.
	Files	car-or-cup.sbx (download from https://machinelearningforkids.co.uk/worksheets)
	Access	Access to an image search site (e.g. Google Images, Bing Images, etc.)
	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 1 custom model 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 need Internet access to search for pictures of cars and cups to train the computer with. Depending on the age of the students, close supervision may be appropriate to ensure safe searching. • The starter Scratch project includes a test set of images. Accuracy will be affected by how similar these are to images the students select to train with. For example, if students collect examples of only sports cars to train the computer to recognise cars, this may struggle to recognise non-sports cars. If this happens, encourage them to think about why it's getting things wrong, and how they could improve this by collecting a more varied set of photos to train the computer with. General troubleshooting and help at https://machinelearningforkids.co.uk/help