

Machine Learning For Kids :: Teachers' notes

Worksheet	Snap
Activity	Make a card game in Scratch that learns to recognise pictures of your card.
Objective	Teach a computer to recognise what icons look like <ul style="list-style-type: none"> Learn how computers can be trained to recognise pictures
Difficulty level	Beginner
Time estimate	1.5 hours (for full version of the project, where the students make their own cards) or 45 minutes (if students are provided with pre-made cards)
Summary	Students will make cards with different coloured icons. They will train a machine learning model to recognise what the icons look like by taking pictures of them with a computer webcam. They will use this in Scratch to make a Snap game where the computer recognises if it chooses a matching card.
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. There are two versions of the worksheet – depending on whether students will make their own cards, or if you will give them pre-made cards.
Resources	Paper, scissors, felt pens (for full project, where the students make their own cards) or Pre-made cards (download and print the “Additional project resources”)
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 1 custom model One “Standard” API key can be used to create multiple custom models more detail at: https://github.com/dalelane/ml-for-kids/raw/master/doc/machinelearningforkids-apikeys.pdf
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Help

Potential issues	<ul style="list-style-type: none"> 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 cards 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. “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. <p>General troubleshooting and help at https://machinelearningforkids.co.uk/help</p>
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