Machine Learning For Kids :: Teachers' notes

Worksheet	Mailman Max
Activity	Make a postal sorting office in Scratch that can recognise handwritten postcodes on envelopes.
Objective	**Teach a computer to recognise handwriting** • Learn how computers can be trained to recognise handwriting • Learn how "optical character recognition" is used to automate tasks like recognising postcodes on letters
Difficulty level	Beginner
Time estimate	1 hour
Summary	Students draw letters on the screen using an on-screen canvas. This will train a machine learning model to recognise some handwriting. They will use this in Scratch to make a project that can sort letters based on the postcodes they write on them.
Topics	optical character recognition, handwriting recognition, image classification

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.
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**.

Project templates	https://github.com/IBM/taxinomitis-docs/tree/master/scratch-templates Scratch 3 templates end .sb3 Scratch 2 templates end .sb2
Worksheets	https://github.com/IBM/taxinomitis-docs/tree/master/project-worksheets/msword

Help

Potential issues	• Some children struggle to write letters by dragging the mouse pointer on the canvas. Reassure them it doesn't need to be perfect, and training the computer to recognise messy handwriting with examples of messy handwriting is fine! • "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. • The worksheet says to use Scratch 3, but you can use Scratch if only Internet Explorer is available. General troubleshooting and help at https://machinelearningforkids.co.uk/help