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 will 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 automatically sort letters based on the postcodes they write on them.
Topics	optical character recognition, handwriting recognition, 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.
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

Help

Potential issues	• Some children struggle with the coordination needed to write letters on the screen by dragging the mouse pointer on the canvas. Reassure them that it doesn't need to be perfect, and that 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 project template includes most of the Scratch script already done. Consider adapting the lesson to fit your class – such as getting the class to implement more of it themselves, or using a PRIMM-approach to spend longer letting them study the template and predict it's behaviour. General troubleshooting and help at https://machinelearningforkids.co.uk/help