Machine Learning For Kids :: Teachers' notes

Worksheet	Confused
Activity	Learn about how computers can be confused and can make mistakes if they're trained badly.
Objective	**Teach a computer to recognise fruit** • Variation in training data is essential for a reliable machine learning system. • The "Russian Tank" problem.
Difficulty level	Intermediate As a project that explores why machine learning sometimes doesn't work, it's perhaps more effective as a follow-on to another project.
Time estimate	45 minutes
Summary	Students will use a pre-prepared poor training set of images to train a machine learning model, and then try it for themselves in Scratch to see the impact of overfitting.
Topics	image classification, supervised learning, overfitting

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	confused.sbx (download from https://machinelearningforkids.co.uk/worksheets)
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	• The two provided data-sets of pre-prepared training photos each represent a different version of "The Russian Tank problem" story. These versions are summarised in the student worksheet. You may wish to allow time for students to discuss the story and the implications to make sure they understand them. General troubleshooting and help at https://machinelearningforkids.co.uk/help