Machine Learning For Kids :: Teachers' notes

Worksheet	Fooled
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 create a 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.
Access	Username and password for machinelearningforkids.co.uk

Class account will need:

API keys	None

Help

Potential issues	• The project represents a version of "The Russian Tank problem" story. Two versions of the story are summarised in the student worksheet. You may wish to allow time for students to discuss the stories and the implications to make sure they understand them. • Dragging and dropping doesn't work in Internet Explorer. You can provide your students with a different web browser (Firefox or Chrome work well) or explain to them how to copy/paste image URLs from a page. • You cannot drag and drop pictures between different types of browser. In other words, you can't drag a picture from a Firefox window to Machine Learning for Kids running in Chrome. Or from a Chrome window to Machine Learning for Kids running in Firefox. You need to use the same type of web browser for both. • "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. General troubleshooting and help at https://machinelearningforkids.co.uk/help