Key Stage 4
Computer Says No

Student briefing sheet

Machine Learning and Artificial Intelligence

Many decisions are already taken by computer programs e.g. which targeted ads you are shown when you are browsing online or when to change a traffic light from red to green.

Increasingly, rather than programmers deciding exactly how computers should make decisions they are writing programs capable of learning. This means that ultimately it is the program that works out the best way to process information in order to carry out a particular task.

This allows programmers to create machines capable of doing more complex tasks more efficiently than they could before.

Sometimes we talk about computers or machines having *Artificial Intelligence (AI).*

http://www.oxfordsparks.ox.ac.uk/content/what-machine-learning

The Black Box

Sometimes a system using Machine Learning or AI is referred to as a *Black Box*. This is because as the machine learns, and so changes the way it works, it becomes practically impossible for anyone to understand exactly how the program is working. You can feed information into the Black Box and it carries out the task, but we can't know what is going on inside the Black Box.

Usually you can carry on teaching the program to improve. For instance speech recognition and predictive text on our smart phones get better at recognising our voices and the words that we use most often the more that we use them.

Decisions, Decisions

Is it sensible to have lots of things decided by computers and not by people? If a computer decided who was offered a place at university, would that be better or worse than a person doing it? Perhaps computers might be less likely to be biased for or against certain groups of people.

Young women used to be charged significantly less for car insurance than young men with the same driving record because statistically young women were involved in fewer accidents. This is no longer allowed. However, if a computer program made the decision how much to charge for insurance how would we know if it was always charging men more just because they were male?

We may not be able to know why a computer made a specific decision, but we often don't know why people make particular decisions either – it may just be because it 'seemed right'.

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