Easy for Me, Hard for You

Comparison between a biological mind and a scentific mind.

Computers are nothing more than calculators at heart. They are very very fast at doing arithmetic. This is great for doing tasks that match what a calculator does - summing numbers to work out sales, applying percentages to work out tax, plotting graphs of existing data.

Even watching catch-up TV or streaming music through your computer doesn't involve much more than the computer executing simple arithmetic instructions again and again. It may surprise you but reconstructing a video frame from the ones and zeros that are piped across the internet to your computer is done using arithmetic not much more complex than the sums we did at school.

Adding up numbers really quickly — thousands, or even millions, a second — may be impressive but it isn't artificial intelligence. A human may find it hard to do large sums very quickly, but the process of doing it doesn't require much intelligence at all. It simply requires an ability to follow very basic instructions, and this is what the electronics inside a computer does.

Now let's flips things and turn the tables on computers! Look at the following images and see if you can recognize what they contain:
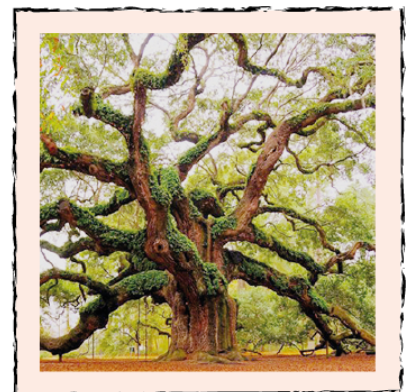
You and I can look at pictures with human faces, a cat, or a tree, and recognize

it. In fact, we can do it rather quickly and to a very high degree of accuracy. We don't often get it wrong. We can process the quite large amount of

information that the images contain, and very successfully process it to recognize what's in the image. This kind of task isn't easy for computers — in fact, it's incredibly difficult.

Problem	Computer	Human
Multiply thousands of large numbers quickly	Easy	Hard
Find faces in a photo of a crowd of people	Hard	Easy

We suspect image recognition needs human intelligence — something machines lack, however complex and powerful we build them because they're not human. But it is exactly these kinds of problems that we want computers to get better at solving — because they're fast and don't get tired. And it these kinds of hard problems that artificial intelligence is all about.

Of course, computers will always be made of electronics, and so the task of artificial intelligence is to find new kinds of recipes, or algorithms, which work in new ways to try to solve these kinds of harder problem. Even if not perfectly well, but well enough to give an impression of a human-like intelligence at work.