Artificial General Intelligence

"I'm sorry Dave, I'm afraid I can't do that" – HAL 9000

This is a famous line from Stanley Kubrick's 2001: A Space Odyssey. This film released to critical acclaim in 1968 at a time when interest in artificial intelligence was at an all time high. The field of research was new and exciting. In 1956, American computer and political Scientist Herbert A. Simon predicted "machines will be capable, within twenty years, of doing any work a man can do". However, as we know this was not the case. In fact, research in the field, which had mainly been funded by the American Department of Defence, was brought to a stand still as progress wasn't being made towards a true artificial intelligence. This period is now referred to as the "AI Winter".

Artificial Intelligence Today

But now over 50 years later the Boom is back and research into machine learning and artificial general intelligence is steadily increasing year on year with more and more huge corporations devoting increased time and funding into these technologies. The increased computational power of todays computers and the huge amounts of data that is collected daily around the globe also lends itself to a resurgence in the field of AI research.

Terms like machine learning and artificial neural networks have become buzz words in recent years but that doesn't mean they aren't legitimate paths to achieving a general intelligence. Machine Learning is a field of AI research that uses statistical techniques to give a computer system the ability to "learn". This means an algorithm can be trained to solve a problem without it having to be explicitly coded. The systems learn by progressively improving their performance at a task. For example, an image classifier, let's say an algorithm that can determine whether a picture contains a cat or a dog. The algorithm or "model" will be fed a large data set of labelled images of cats and dogs. The model will make predictions on what it thinks the image contains, given as a percentage of certainty, and then it will readjust its parameters (known as weights and biases) to try and get a better result on subsequent predictions.

Before today the computational power to drive machine learning algorithms wasn't at a stage yet where it could preform all the calculations required for training these machine learning models in a reasonable time, in addition to this access to huge amounts of data from the internet etc. provide the perfect data sets to training model for solving real world problems e.g. self-driving cars recognising road signs.

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