What is machine learning and How it is different from Artificial Intelligence.

Machine learning is a type of artificial intelligence (AI) that allows software applications to become more accurate in predicting outcomes without being explicitly programmed.

The basic premise of machine learning is to build algorithms that can receive input data and use statistical analysis to predict an output value within an acceptable range.

Machine learning algorithms are often categorized as being supervised or unsupervised. Supervised algorithms require humans to provide both input and desired output, in addition to furnishing feedback about the accuracy of predictions during training. Once training is complete, the algorithm will apply what was learned to new data. Unsupervised algorithms do not need to be trained with desired outcome data. Instead, they use an iterative approach called deep learning to review data and arrive at conclusions.

Unsupervised learning algorithms are used for more complex processing tasks than supervised learning systems

Artificial Intelligence (AI) and Machine Learning (ML) are two very hot buzzwords right now, and often seem to be used interchangeably. They are not quite the same thing, but the perception that they are can sometimes lead to some confusion. So I thought it would be worth writing a piece to explain the difference. Both terms crop up very frequently when the topic is Big Data, analytics, and the broader waves of technological change which are sweeping through our world.

In short, the best answer is that:

Artificial Intelligence is the broader concept of machines being able to carry out tasks in a way that we would consider “smart”.

And,

Machine Learning is a current application of AI based around the idea that we should really just be able to give machines access to data and let them learn for themselves.

Early Days

Artificial Intelligence has been around for a long time – the Greek myths contain stories of mechanical men designed to mimic our own behavior. Very early European computers were conceived as “logical machines” and by reproducing capabilities such as basic arithmetic and memory, engineers saw their job, fundamentally, as attempting to create mechanical brains.

As technology, and, importantly, our understanding of how our minds work, has progressed, our concept of what constitutes AI has changed. Rather than increasingly complex calculations, work in the field of AI concentrated on mimicking human decision making processes and carrying out tasks in ever more human ways.

Artificial Intelligences – devices designed to act intelligently – are often classified into one of two fundamental groups – applied or general. Applied AI is far more common – systems designed to intelligently trade stocks and shares, or man oeuvre an autonomous vehicle would fall into this category.

Machine learning is a particular approach to artificial intelligence. It is true that it is proving to me the most successful approach to AI. But, I disagree with Monica Anderson’s answer: it is NOT the “only” approach.

For example, you’d be surprised to hear that some of the self-driving cars that currently describing themselves as using AI, use very little machine learning and are mostly using rule-based systems.

That said, I would agree that most AI applications nowadays are indeed using or will use ML soon. On the other hand, Deep Learning, which is itself a kind of Machine Learning is becoming more an more popular and successful at different use case. However, it does not even represent a majority of the applications.

Machine Learning is the only kind of AI there is.

AI is changing. We are now recognizing that most things called "AI" in the past are nothing more than advanced programming tricks. As long as the programmer is the one supplying all the intelligence to the system by programming it in as a World Model, the system is not really an Artificial Intelligence. It's "just a program".

Don't model the World; Model the Mind.

When you Model the Mind you can create systems capable of Learning everything about the world. It is a much smaller task, since the world is very large and changes behind your back, which means World Models will become obsolete the moment they are made. The only hope to create intelligent systems is to have the system itself create and maintain its own World Models. Continuously, in response to sensory input.

Following this line of reasoning, Machine Learning is NOT a subset of AI. It really is the ONLY kind of AI there is.

And this is now proving to be true, and in a big way. Since 2012, a specific Machine Learning technique called Deep Learning is taking the AI world by storm. Researchers are abandoning the classical "Programming Tricks" style of AI in droves and switching to Deep Learning... based mainly on the fact that it actually works. We've made more progress in three years since 2012 than we've done in the preceding 25 years on several key AI problems,

including Image Understanding (a really hard one), Signal Processing, Voice Understanding, and Text Understanding.

CONCULSION:

Machine learning is a type of artificial intelligence (AI) that allows software applications to become more accurate in predicting outcomes without being explicitly programmed.