Define ML in your own words

Machine learning is a way for programs and computers to improve their prediction capabilities over time by being fed a large amount of data.

In a paragraph, summarize the importance of data, pattern recognition, and accuracy in machine learning

Data is needed in machine learning to provide examples to the computer and to act as material to train and test the machines increase in abilities. Pattern recognition is the main area of improvement that programmers are trying to increase in their programs/computers, by being feed data computers find patterns in the provided data through machine learning. Accuracy is a key aspect of machine learning because even a random number generator could identify if a picture had a dog or cat on it and it would be right about 50% of the time, the value in machine learning is being able to increase that accuracy value to the point where the computer can accurately identify if the picture is a cat or a dog close to 100% of the time. By data in the form of a large catalog of dog and cat pictures, a computer can have its pattern recognition trained through machine learning such that it can accurately identify which picture has a dog and which has a cat.

Describe the relationship between AI and ML

The relationship between AI and machine learning is that machine learning is the method by which a computer is trained to gain a form of artificial intelligence.

List at least 2 examples of modern machine learning applications, and explain why these applications could not be built with traditional programming

Video recommendations for services like YouTube or Netflix is an application of machine learning. The video recommendation system used by these services could not have been built with traditional programming, because the recommendation of videos is tailored to individual users of the services which needs machine learning.

Image recognition is a modern application of machine learning that could not be made with traditional programming, because a traditional program has no way to identify an image it has not seen before so it would have to be trained with large amounts of pictures to identify a completely new picture.

In a paragraph, define the terms observation, feature, quantitative data, and qualitative data and discuss their importance in machine learning

An observation is a single piece of data, also referred to as an instance or example, machine learning takes in a bunch of observations to train its pattern recognition. A feature is a specific aspect of an observation, and observation can have more than one feature, often in machine learning the computer is trying to predict the value of one feature based off of the values of other features. Quantitative data is data that has a numerical value and in machine learning quantitative data can act as the target for an algorithm in regression. Qualitative data is

data that has some sort of class like happy or sad and in machine learning qualitative data can act as the target of an algorithm in classification.

Write a paragraph describing your personal interest in ML and whether/how you would like to learn more about ML for personal projects and/or professional application

I am interested in machine learning because it is an integral part of AI and is used in a variety of modern technologies. I gained an interest at a young age in AI by watching movies and shows featuring robots and computer systems with artificial intelligence and as I got older that interest stayed with me. The way I would like to learn more about machine learning is through the actual training of a computer to recognize patterns instead of only learning about the theory of how machine learning works. I think by working on a machine to recognize patterns in images or sets of data, I will understand the concepts of machine learning.