Joshua Durana

CS 4375.003

Overview of ML

a. Training computers to find patterns within data for analysis, prediction, and for autonomous agents to choose an action.

b. Data is needed for a computer to learn and use it to make predictions, analysis, and to choose an action. Patterns is how the algorithm learns, but we need to figure out which patterns to look for. Accuracy is important because if we have a low accuracy in our predictions, then the model is useless.

c. Machine learning is a subset of artificial intelligence. Artificial intelligence tries to build systems that can learn and problem solve, while machine learning uses data and patterns within the data to learn.

d. 2 modern applications of machine learning is sentiment analysis and recommendations. Sentiment analysis needs machine learning because it's hard to encode the rules to track the emotion given in a body of text. Recommendation algorithms need machine learning because there are too many people to individually encode recommendations.

e. Quantitative data is data that has a numeric value and quantitative data is data that has a set of finite values. They're important when we're trying to predict either a quantitative value with regression or a qualitative value with classification. Observation is an instance of data and is represented as a row and a feature describes the observation and is represented as a column. Observations are important because they create the patterns that will be used in a machine learning algorithm. Features are important because they describe the data point and will be used as predictors or targets.

f. I've always been interested in machine learning and its applications in natural language processing and computer vision. I want to learn more about machine learning to use it to

find interesting insights in data and to use it in my personal projects to make interesting applications.