

Overview

1. Define ML in your own words.
 - a. Machine Learning is a way for computers to automatically learn and improve from experience without being explicitly programmed. It uses algorithms to find patterns and insights in data, and then uses that knowledge to make predictions or decisions.
2. Summarize the importance of data, pattern recognition, and accuracy in machine learning.
 - a. In Machine Learning, data is important because it's used to train the model, pattern recognition helps the model find patterns in the data, and accuracy measures how well the model can use the patterns to make predictions.
3. Describe the relationship between AI and ML
 - a. AI is the idea of making machines intelligent, and ML is one way to do this by having machines learn from data.
4. List at least 2 examples of modern machine learning applications, and explain why these applications could not be built with traditional programming.
 - a. Self-driving cars use machine learning to understand and navigate their environment, traditional programming is not able to handle the complexity and variability of the real-world driving scenarios.
 - b. Fraud detection systems use machine learning to analyze large amounts of financial data and identify patterns and anomalies that may indicate fraudulent activity. Traditional programming would not be able to handle the volume and complexity of the data and it would be very difficult to hard code all the possible scenarios of fraudulent activities.
5. In a paragraph, define the terms observation, feature, quantitative data, and qualitative data and discuss their importance in machine learning.
 - a. Observations are data used in machine learning. Features are characteristics of an observation. Quantitative data is numerical data that can be measured. Qualitative data is non-numerical data that describes a characteristic of an observation. These elements are all important for training and evaluating machine learning models.
6. 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.
 - a. My personal interests in Machine Learning include sports analytics, automotive innovation, and video game innovation. I find the application of ML in sports analytics particularly fascinating as it allows for a deeper understanding of player performance and tactics, and can provide valuable insights to coaches, players and fans. Automotive innovation is also an area of interest to me because of the potential for ML to improve the safety, efficiency, and overall performance of vehicles. I believe that ML has the potential to revolutionize the automotive industry by enabling cars to make better decisions, improve energy efficiency and reduce accidents. Lastly, I am interested in the application of ML in video game innovation. With the help of ML, video games can become more realistic and interactive, and adapt to player preferences and actions. It can also be used to

create more accurate and immersive virtual worlds. Overall, I am excited about the potential for ML to revolutionize these areas and I am eager to learn more about its various applications.