

Okay, um, welcome everyone to today's lecture on Machine Learning basics.

So, you know, machine learning is basically teaching computers to learn from data instead of, like, giving them explicit rules.

First, let's quickly go over supervised learning. In this method, the system is trained on labeled data. For example, an email marked as spam or not spam. The model learns patterns and then predicts unseen cases. Common algorithms include decision trees, support vector machines, and neural networks.

Next, unsupervised learning is when the system finds patterns without labels. For instance, clustering customers into groups based on their purchasing behavior. K-means is a classic example.

Reinforcement learning is another type. Here, an agent interacts with an environment and learns from feedback or rewards. A famous example is training an AI to play video games or, uh, control a robot.

Some challenges in machine learning include overfitting, where the model memorizes training data but performs poorly on new data, and bias, which happens when the data itself is not balanced.

Finally, applications: machine learning is used in healthcare for disease prediction, in finance for fraud detection, and in self-driving cars for object recognition.

That's all for today's introduction. In the next lecture, we will cover evaluation metrics like accuracy, precision, recall, and F1-score.