Machine Learning Stanford Class

**Week 1 Notes**

Machine learning uses

Google searches

building truly intelligent machines that mimic human behavior

neurla networks

Welcome

machine learning at work

facebook photo image tagging recognition

spam filtering

building truly intelligent machines

machine learninging history

grew out of AI

best way to teach computers is have computers learn themselves

machine learning examples

database mining

web click data

figure out click data and how users interact with a site

medical records

understand disease better

biology

gene sequences and dna secquences

gives us a better idea of the human genome

engineering

applications that cannot be written by hand

autonomous helicopter

handwriting recognition

computer figures it out

natural language processing (NPL)

self-customizing programs

Amazon, Netflix, and other product recommendations

understanding human learning

brain and real AI

What is machine learning

Arthur Samuel: field of study that gives computer the ability to learn without being explicitly programmed

example of computer that plays checkers against itself

Tom Mitchell: computer learns from experience E with respect ot some task T and some performance measure P

E=Experience

T=Task

P=Performance Measure

example

suppose you’re your email program watches which emails you do or do not mark as spam and learns how to better filter, what is T?

classify emails as spam or not spam=T

watching you label emails=E

fraction of emails correctly classified as spam/not spam=P

**2 main types of learning algorithms**

1. supervised learning

teach the computer how to do something

2. unsupervised learning

the computer will learn by itself

reinforcement learning and recommender systems

course will also cover practical versus non-practical items