**Week 1:**

1. Algo and math not just enough, application is imp
2. ML grew out of AI
3. Examples:
   1. Click stream data used know more about users
   2. Medical record to medical knowledge
   3. Genomics
   4. Autonomous helicopter (can’t be programmed)
   5. NLP
   6. Handwriting recognition
   7. CV
   8. Recommendation systems
4. ML – ability to learn without being explicitly programmed (Checkers example)
5. Supervised Learning – labelled dataset (for every data point we had “right” answer)
   1. Classification / Regression
6. Unsupervised Learning – don’t give “right” answers
   1. Clustering
      1. Google news (cohesive news clustering)
      2. Clustering people into group from gene data
      3. Social network analysis
      4. Market segmentation
   2. Cocktail Party problem – hard to hear people in noisy party
      1. Multiple speaker recording multiple people’s audio
      2. Pass them to algo, then algo will split the audios
7. Model Representation – Regression Supervised problem (hypothesis)
8. Cost Function – Help fit best line to data (chosing parameters of model changes hypothesis function)