**LECTURE 1 MACHINE  BASICS**

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**Basic Concepts**

01. What is ML?

02. What is Learning?

· Supervised

· Unsupervised

03. What is Regression?

04. What is Classification?

**Machine Learning**

01. Limitations of Explicit Programming

· Spam Filter: Many Rules

· Automatic Driving : Too Many Rules

02. Machine Learning

“Field of study that gives computers the ability to learn

without being explicitly programmed” Arthur Samuel (1959)

**Supervised/Unsupervised Learning**

01. Supervised Learning

· Learning with Labeled Examples - Training Set

An Example Training Set for Four Visual Categories.

http://cs231n.github.io/classification/

**Supervised Learning**

**Supervised/Unsupervised Learning**

01. Supervised Learning

· Learning with Labeled Examples

02. Unsupervised Learning : Un-labeled Data

· Google News Grouping

· Word Clustering

**Supervised Learning**

Most Common Problem Type in ML

· Image Labeling : Learning from Tagged Images

· Email Spam Filter : Learning from Labeled (Spam or Ham) Email

· Predicting Exam Score : Learning from Previous Exam Score and Time Spent

**Training Data Set**

**AlphaGo**

**Types of Supervised Learning**

01. Predicting Final Exam Score Based on Time Spent

· Regression

02. Pass/non-pass Based on Time Spent

· Binary Classif ication

03. Letter Grade (A, B, C, D and F) Based on Time Spent

· Multi-label Classif ication

**Predicting Final Exam Score Based on Time Spent**

X (hours) Y (score)

10 90

9 80

3 50

2 30

**Pass/non-pass Based on Time Spent**

X (hours) Y (pass/fail)

10 P

9 P

3 F

2 F

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**Letter Grade** (A, B, ...) **Based on Time Spent**

X(hours)

Y (grade)

10A9B3D2 F

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**NEXT LECTURE**

**LINEAR REGRESSION**