Ensemble Learning

Basics

- Wisdom of the crowd
  - Ask the Crowd
  - Wisdom
- Collapse of the crowd
  - Group collapse
  - Herding
  - Groupthink
- Image via Bo Dreyerthes learning
  - Jelly beans in a jar of distinguish dogs of a cause
  - Jelly beans in a jar
  - Jelly beans in a jar of cable data from years of maps
  - Jelly beans in a jar of Bo Dreyer
- How predict from cumin
  - Cut regression
    - $\hat{y} = \sum_{i=1}^{n} w_i x_i + b$
    - $\hat{y} = \sum_{i=1}^{n} w_i x_i + \sum_{j=1}^{m} v_j x_j + b$
    - $\hat{y} = \sum_{i=1}^{n} w_i x_i + \sum_{j=1}^{m} v_j x_j + \sum_{k=1}^{l} u_k x_k + b$
    - Input X with Cry the cumin
  - Cut classification
    - $\hat{y} = \text{sign}(\sum_{i=1}^{n} w_i x_i + b)$
    - $\hat{y} = \text{sign}(\sum_{i=1}^{n} w_i x_i + \sum_{j=1}^{m} v_j x_j + b)$
    - $\hat{y} = \text{sign}(\sum_{i=1}^{n} w_i x_i + \sum_{j=1}^{m} v_j x_j + \sum_{k=1}^{l} u_k x_k + b)$
    - Input output cut is discretized y
  - Question
- Learning Ensemble
  - Ensemble Learning
  - Regression Ensemble
  - Classification Ensemble
  - Boosting
  - Bagging
  - Adaboost
  - Stacking
- Supervised learning
  - Unsupervised learning
  - Reinforcement learning
- Logistic
  - Binary classification problem
  - Multi-class classification problem
  - Multi-label classification problem

Voting Ensemble

- Voting
  - Voting
  - Voting
  - Voting
- Voting Ensemble
  - Regression
    - Regression
    - Regression
    - Regression
    - Regression
  - Classification
    - Classification
    - Classification
    - Classification
    - Classification
  - Voting
    - Voting
    - Voting