## 无监督学习

监督学习 (输入数据均已标记)

回归

随机森林

神经网络

决策树

朴素贝叶斯

自训练算法 多视角算法

图论法 半监督SVM

生成模型

半监督学习 (输入标记和无标记均有) 无监督学习 (输入数据无需标记)

K-Means

PCA算法

Apriori

FPGrowth

SARSA

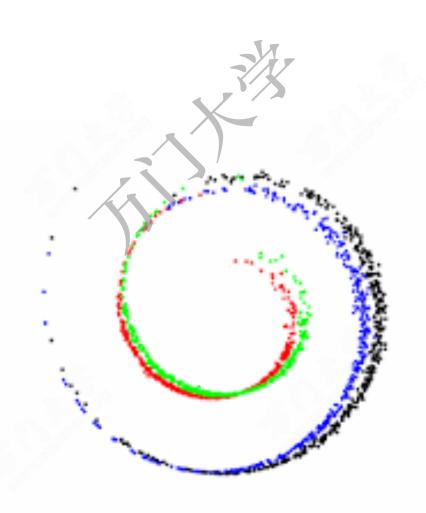
TD算法

Q学习算法

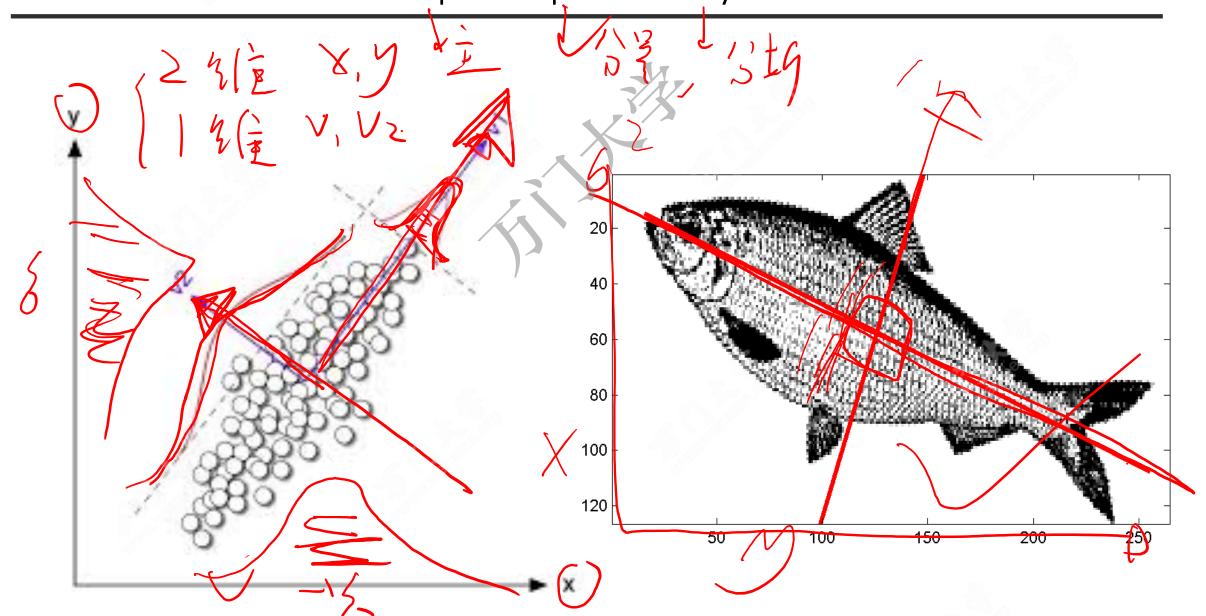
马尔科夫决策过程

强化学习 (由环境信号训练模型)

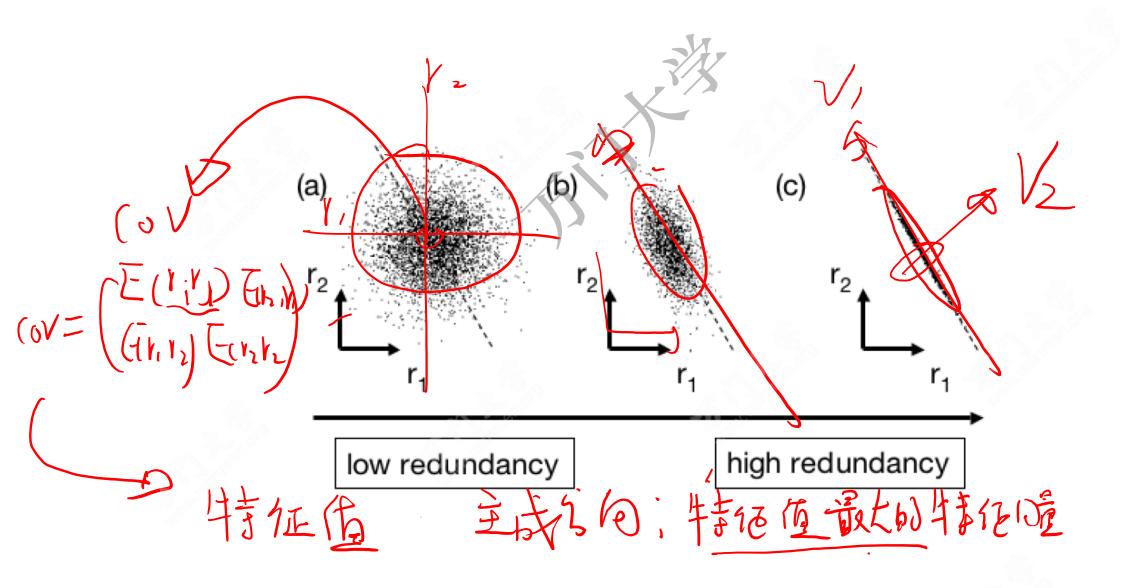
## **Dimension Reduction**



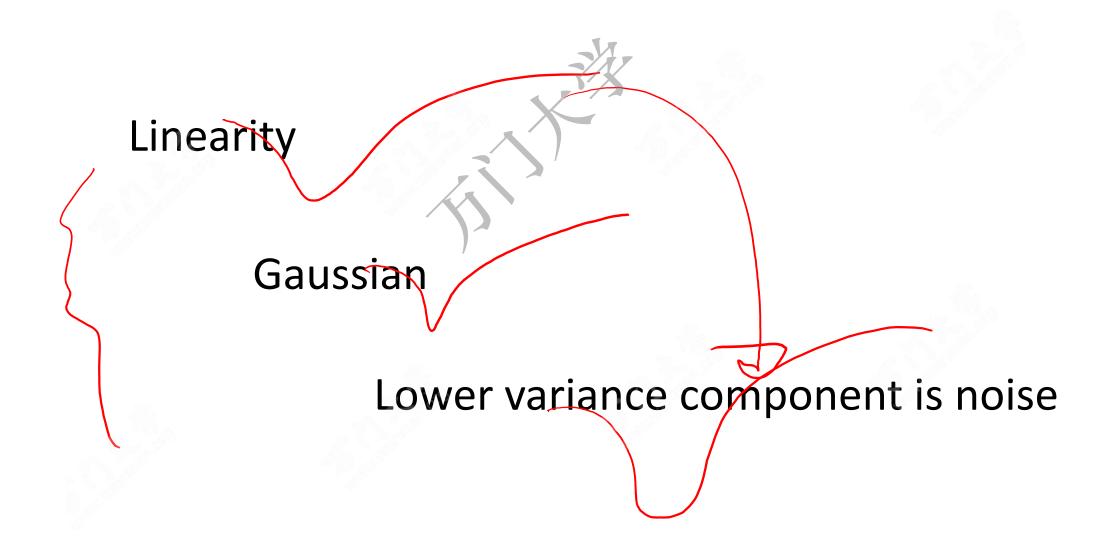
**Principle Component Analysis** 

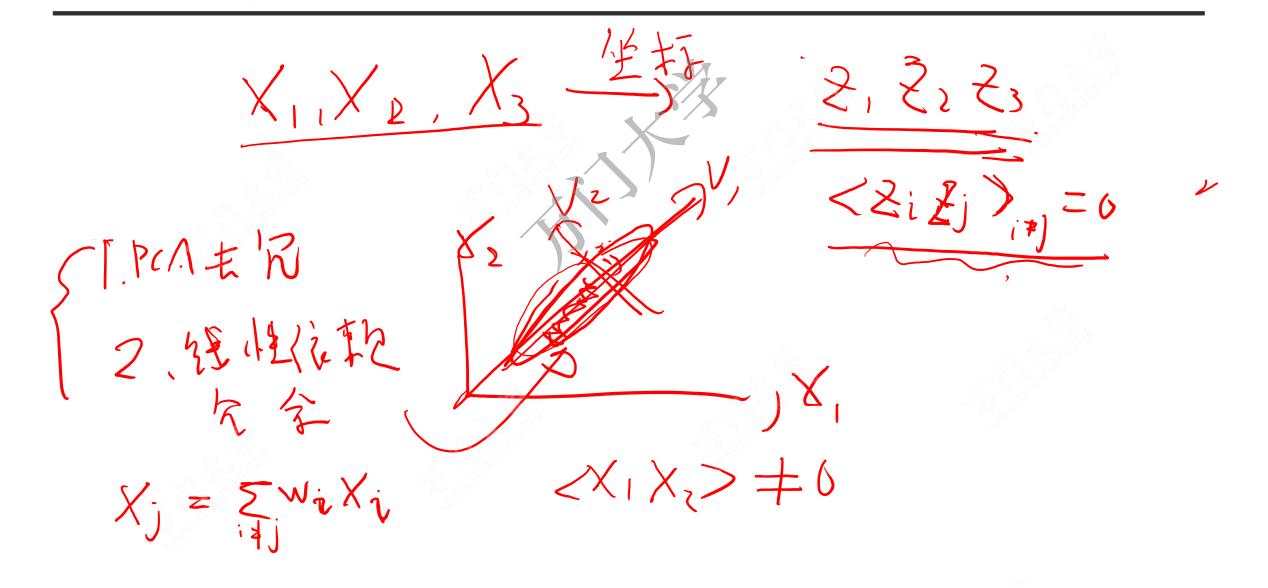


## Linear Algebra: reduce dependent variable



## PCA背后的假设



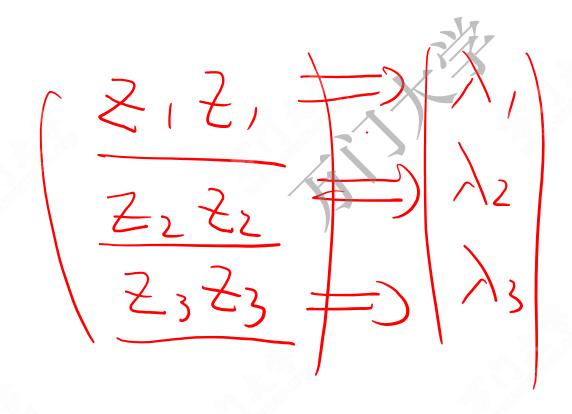


CRUNSER

$$\frac{X_{1}, X_{2} X_{3}}{X_{1}, X_{2} X_{3}} = \frac{\sum_{i=1}^{N} (X_{i} - M_{i})}{\sum_{i=1}^{N} (X_{i} - M_{i})}$$

$$\frac{1}{8i} (X_{i} - M_{i})$$

$$\frac{1}{8i} (X_{i} - M_{$$



First centered Olivetti faces

genfaces - PCA using randomized SVD - Train time 0.:

