
 This repository Search


Pull requests Issues Gist

 lucoby / **CS6601notes**

Unwatch 1 Star 0 Fork 0

Code Issues 0 Pull requests 0 Wiki Pulse Graphs Settings

Branch: master CS6601notes / 5 - Probability.md Find file Copy path

 lucoby actual clean up 511748c 14 days ago

1 contributor

27 lines (17 sloc) 851 Bytes Raw Blame History

Lesson 5 - Probability

Probability

Probability basics:

- Sum of probabilities is 1
- If you have a binary event a probability of an event is p then the probability of event not occurring is $1 - p$
- If you have multiple events that are independent, the probability of all of the events occurring is the probability of the probabilities of individual events - $P(x)P(y) = P(x,y)$ - Joint probability is the product off marginal probabilities
- The probability that one of several outcomes occurs is the sum of the probabilities of each individual outcome

Dependence

$$P(Y) = \sum_i \{P(Y|X = i)\}P(X = i) \quad P(\text{not } X | Y) = 1 - P(X|Y)$$

Bayes Rule

$$P(A|B) = P(B|A) P(A) / P(B)$$

- $P(B|A)$ is the likelihood
- $P(A)$ is the prior
- $P(B)$ is the marginal likelihood
- $P(A|B)$ is the posterior

$$P(B) \text{ is often expanded as } P(B) = \sum_a \{P(B|A = a) P(A = a)\}$$
