AIML - Probability Primer

classmate
Date 4/8/24
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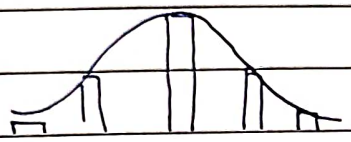
Derived Probability Distributions

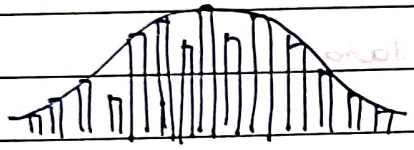
Provided n is sufficiently huge. Continuous results



Tossing a coin 20 times

P(# of times heads occurs)

Bell curve.



As no. of samples ↑

distribution remains same

⇒ convergence

Unbiased Coin

Doubt IMP to determine optimal value for no. of samples.

How much to sample.

↳ Sampling — % of people in normal distribution marks around average

Fundamentals of Probability

$0 \leq P(A) \leq 1$

$\Sigma P(A) = 1$

$P(A) + P(\bar{A}) = 1$

$P(A \cup B) = P(A) + P(B) - P(A \cap B)$

$P(AB) = P(A) \cdot P(B)$ for independent events

Expectation (Average, likelihood of event to be likely true)

Random sampling of the cards

⇒ Different sample groups probability and then find mean

Dependent events: Depends on prior events.

* Standardization : mean, var, standard deviation.

Ex: Diff statistical terms (H.W)

Ex: Daily weather temp for a week

mean - central value (gives good summary)

Variance - degree of spread

Standard dev - scale of actual data

Conditional Probability

most used thm : Bayes theorem

Prob changes as condition changes

relationship b/w Posterior and likelihood

Intuition: If B has occured, Prob of A to occur.

** $P(A|B) = \frac{P(B|A) \cdot P(A)}{\text{Evidence}}$

Posterior

$P(A)$ → un-influenced by B

Evidence → since B has already occurred.

How much to Sample?

Trial and Error (Brute force)

Random Sampling Techniques

Define Population set

Determine the margin of error

also find population variability.

Expectation: $E = \Sigma P_i V_i$

* SIMULATE, VISUALISE, ANALYSE *