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Least mean squares LMS estimation vertical



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Exercise: LMS estimation

(1/1 point)

Let Θ be the bias of a coin, i.e., the probability of Heads at each toss. We assume that Θ is uniformly distributed on $[0, 1]$. Let K be the number of Heads in 9 independent tosses.

By performing some fancy and very precise measurements on the structure of that particular coin, we determine that $\Theta = 1/3$. Find the LMS estimate of K based on Θ .




Answer: 3

Answer:


Do not be confused by the choice of notation. Here, K is the variable being estimated and Θ is an observation. The posterior in this case is $p_{K|\Theta}$ and is a binomial distribution with parameters 9 and $1/3$. Thus, the LMS estimate is $\mathbf{E}[K \mid \Theta = \theta] = n\theta = 9/3 = 3$.

You have used 1 of 2 submissions


Unit overview**Lec. 14:
Introduction to
Bayesian inference**

Exercises 14 due Apr
06, 2016 at 23:59 UTC 


**Lec. 15: Linear
models with
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Problem Set 7a

Problem Set 7a due
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UTC 


**Lec. 16: Least
mean squares
(LMS) estimation**

Exercises 16 due Apr
13, 2016 at 23:59 UTC 

**Lec. 17: Linear
least mean
squares (LLMS)
estimation**

Exercises 17 due Apr
13, 2016 at 23:59 UTC 

Problem Set 7b

Problem Set 7b due
Apr 13, 2016 at 23:59
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Solved problems**Additional
theoretical
material****Unit summary**

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