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Least mean squares LMS estimation vertical2



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## Exercise: LMS example

(1/1 point)

The random variables  $\Theta$  and  $X$  are described by a joint PDF which is uniform on the triangular set defined by the constraints  $0 \leq x \leq 1$ ,  $0 \leq \theta \leq x$ . Find the LMS estimate of  $\Theta$  given that  $X = x$ , for  $x$  in the range  $[0, 1]$ . Express your answer in terms of  $x$  using standard notation .


Answer:  $x/2$ 

Answer:


The conditional PDF of  $\Theta$  given that  $X = x$  is uniform on the set  $[0, x]$ . Thus, the conditional expectation of  $\Theta$  given that  $X = x$  is equal to  $x/2$ .

*You have used 2 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****normal noise**

Exercises 15 due Apr  
06, 2016 at 23:59 UTC 


**Problem Set 7a**

Problem Set 7a due  
Apr 06, 2016 at 23:59  
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  
UTC 

**Solved problems****Additional****theoretical****material****Unit summary**

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