- Unit 0: Overview
- Entrance Survey
- Unit 1: Probability models and axioms
- Unit 2: Conditioning and independence
- Unit 3: Counting
- Unit 4: Discrete random variables
- Exam 1
- Unit 5: Continuous random variables

Exercise: ML estimation

(1/1 point)

Let K be a Poisson random variable with parameter λ: its PMF is

$$p_K(k;\lambda) = \frac{\lambda^k e^{-\lambda}}{k!}, \qquad \text{for } k = 0, 1, 2, \ldots .$$

What is the ML estimate of λ based on a single observation $K = k$? (Your answer should be an algebraic function of k using standard notation .)

k

Answer: k

Answer:

- Unit 6: Further topics on random variables
- Unit 7: Bayesian inference
- Exam 2
- **Unit 8: Limit theorems and classical statistics**

Unit overview

Lec. 18: Inequalities, convergence, and the Weak Law of Large Numbers
Exercises 18 due Apr 27, 2016 at 23:59 UTC

Lec. 19: The Central Limit Theorem (CLT)
Exercises 19 due Apr 27, 2016 at 23:59 UTC

Lec. 20: An introduction to classical statistics
Exercises 20 due Apr 27, 2016 at 23:59 UTC

We maximize the logarithm of the PMF, which is $k\ln\lambda - \lambda - \ln(k!)$. Setting the derivative of this expression with respect to λ to 0, we obtain $(k/\lambda) - 1 = 0$, so that $\hat{\lambda}_{ML} = k$.

You have used 1 of 2 submissions

Solved problems

Additional theoretical material

Problem Set 8
Problem Set 8 due Apr 27, 2016 at 23:59 UTC

Unit summary