MITx: 6.041x Introduction to Probability - The Science of Uncertainty

Bookmarks

Unit 0: Overview

Entrance Survey

Unit 1: Probability models and axioms

Unit 2: Conditioning and independence

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Unit 5: Continuous random variables

Unit 9: Bernoulli and Poisson processes > Lec. 22: The Poisson process > Lec 22 The Poisson process vertical4

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Exercise: Erlang r.v.'s

(1/1 point)

Let X and Y be independent Erlang random variables with common parameter λ and of order m and n, respectively. Is the random variable $X+Y$ Erlang? If yes, enter below its order in terms of m and n using standard notation . If not, enter 0.

m+n

Answer: m+n

Answer:
The random variable X can be viewed as the sum of m i.i.d. exponential random variables. Similarly, Y can be viewed as the sum of n i.i.d. exponential random variables. Furthermore, since X and Y are independent, we take these two collections of random variables to be independent. Thus, $X+Y$ can be interpreted as the sum of $m+n$ i.i.d. exponentials, and is Erlang of order $m+n$.

- Unit 6: Further topics on random variables
- Unit 7: Bayesian inference
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- Unit 8: Limit theorems and classical statistics
- **Unit 9: Bernoulli and Poisson processes**

Unit overview

Lec. 21: The Bernoulli process
Exercises 21 due May 11, 2016 at 23:59 UTC

Lec. 22: The Poisson process
Exercises 22 due May 11, 2016 at 23:59 UTC

Lec. 23: More on the Poisson process

You have used 1 of 1 submissions

Exercises 23 due May 11, 2016 at 23:59 UTC

Solved problems

Additional theoretical material

Problem Set 9
Problem Set 9 due May 11, 2016 at 23:59 UTC

Unit summary

Unit 10: Markov chains