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Gathering and Collecting Data
Finger Exercises due Oct 17, 2016 05:00 IST

Kernel Density Estimation, Part III - Quiz

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Question 1

1 point possible (graded)

For a given functional form of the Kernel weighting function, what determines its height?

- a. The number of observations.
- b. The height should be chosen optimally.
- c. The bandwidth
- d. The probability density function of the underlying random variable.

Explanation

Since the kernel function integrates to 1, and the bandwidth represents the (fixed) width of the interval over which it is evaluated, the bandwidth determines the limits of the integral, and thus determines the height of the kernel function.

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Question 2

1 point possible (graded)

Which of these would be an unsuitable Kernel? (Select all that apply)

- [ ] a. A hump-shaped (inverted U) function.
- [ ] b. A V-shaped function.
- [ ] c. An inverted V-shaped (pyramid) function.
- [ ] d. A bell-shaped function.

Explanation

The goal of kernel density estimation is to estimate random variables' probability density functions. We turn to kernel density estimates to obtain a smoother, less variable representation of the underlying data, than a histogram.

Intuitively, any function that weights observations on the boundary of the intervals more than observations at the center of the interval surrounding a given point, will lead to higher variance. This would defeat the purpose of a kernel, as it would result in a less smooth estimator.

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Discussion
Topic: Module 3 / Kernel Density Estimation, Part III - Quiz

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