Unit 7 Pre-Class Warm-up

Joanna Yu Tuesday 4pm

Maximum Likelihood Overview

Each time Paul Laskowski attempts a joke in class, he secretly records the number of students that laugh (Sometimes, the Human Subjects Board is just in a great mood). Paul gives you a dataset of 500 jokes and insists that you model each observation as an independent random variable that's distributed according to the HyperGroussian distribution, which has a single parameter, $h \in \mathbb{R}$. The probability density function of this distribution can be written $f_H(x; h)$.

In your own words, list the four or five key steps you would take to perform a maximum likelihood estimate of h. (Just a sentence per step)

1. Define the random variables, which are distributed according to the HyperGroussian distribution in this case.
2. Identify the likelihood function.
3. If the likelihood function is not easy to maximize, take the log of the likelihood function and do step 4. Otherwise, proceed to step 5.
4. Maximize the log of likelihood function by taking the derivative and setting that to zero.
5. Maximize the likelihood function by taking the derivative and setting that to zero.