Homework 6

STAT 547, Fall 2019

You are encouraged to discuss the homework questions with classmates or the instructor, but you must write and submit your individual copy. Please write down the name of the persons with whom you discussed the homework, and submit your homework in a single pdf file through Canvas. Due on Dec 3 before class.

1. Implement the regularization approach for the scalar-response functional linear regression model.

   (a) Apply the code to analyze the medfly dataset `fdapace::medfly25`. Find and interpret the association between the number of total remaining eggs as response and the egg-laying trajectories as the predictor function. Set the tuning parameter λ appropriately.

   (b) Compare your results with those given by an FPC regression approach (code available in the Notebook §4.4).

2. Use the functional concurrent regression model to analyze the US GDP data posted with this homework. An R implementation `fdapace`::FCReg is available. Explore different tuning parameter settings and interpret the results.

3. Implement the FPC regression approach for a functional-response functional linear regression model and apply it to analyze the US GDP data. Compare the results and interpretation with those in the previous question.