Homework 3

Total points : 20

1. Generate data with outliers, which can be embedded into $L_2[0,1]$ space. Propose a methodology for outlier detection/estimation of proportion of outliers in an infinite dimensional data and implement your methodology on the generated data.

Points : 10

2. Consider a regression model $Y = m(X) + \epsilon$, where $m : L_2[0,1] \to \mathbb{R}$. Propose an estimator of m for a given random sample $(X_1, Y_1), \ldots, (X_n, Y_n)$, and study the performance of your proposed estimator for a simulated data.

Points : 10

Deadline: Deadline of submission is March 15, 2024.

Remark: You can use any package or any programming language to carry out the study.