The third project of this dissertation will focus on extension of the fGFPCA method applied to dynamic prediction of functional data. One potential direction is the prediction of multi-level functional data, where the unit of observation for each subject is a set of functions, instead of one single curve. For example, in longitudinal neuroimaging datasets, multiple images of the same patient are taken over time and each image can be represented by a function. Another topic to be considered is the prediction of multi-variate functional outcome. While this kind of data also involves multiple functions from the same subject, the functions represent different measurements. This is commonly seen in physical activity data, where a wearable device can collect many indicators simultaneously, such as activity count, intensity, heart rate, etc.