Statistical techniques and models for the analysis of functional data
Project III (MATH3382)

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Academic year 2021-2022 @ Durham University

Description

The focus of this project is the study of statistical methods, and related computational tools, that can be used for the Functional Data Analysis (FDA). FDA deals with the analysis of functional data. By functional data, we mean data in the form of functions, images and shapes, or more general objects. Such data can be recorded continuously during a time interval or intermittently at several discrete time points.

Project specific intended learning outcomes

By the end of this project, students will study and be able to implement different methods in FDA, as well as they be able to design statistical models and related methods to address issues usually encounter in FDA. Moreover, you will be able to use suitable software required to the practical implementation of this methodology.

Potential project directions

In Term 1, students will be studying the new concepts. By the end of term 1, students will be able to choose a specific direction on which the project focuses. Some examples of possible project directions: Functional Principal Component Analysis; high-dimensional and functional data, or any other...

Requirements

- Statistical Concepts II (pre-requisite) ; Statistical Methods III (co-requisite)

References

- Wang, J. L., Chiou, J. M., & Müller, H. G. (2016). Functional data analysis. Annual Review of Statistics and Its Application, 3, 257-295.
- Ramsay, J. O. and Silverman, B.W. (2005) Functional data analysis, 2nd ed., Springer
- Ramsay, J. O., Hooker, G., Graves. P., (2009) Functional Data Analysis with R and MATLAB, Springer

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