Recent Advances in Functional Data Stream Classification

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High frequency processing and streaming data analysis have recently attracted the attention of statistical researchers. The stream processing model assumes that data flow continuously from a source and that they are potentially unbounded in size. This circumstance inhibits to store the whole dataset. Moreover this kind of data is useful when the analytics need to be done in real time. In fact, in some fields the value of the analysis decreases with time. The analyst cannot reanalyze the data after it is streamed, so it is important to use appropriate tools. In this paper we propose an alternative functional data stream classification to implement existing techniques and we address phenomena in which the statistical units are expressed through a process defined by a curve or a function. In particular, we propose a general theoretical methodology when units belong to a non convex functional space.

Keywords: clustering; functional data analysis; convex spaces.