



Modelling Natural Phenomena using Hierarchical Tree Clustering

Natural events provide all sorts of challenges when it comes to understanding how and why they occur. Natural science have done a great job de-constructing and understanding the causes of all sorts of phenomena. However, in order to make accurate predictions they require the observations of many variables, some of which are not easily accessible or measurable. For example, shifts in the tectonic plates could affect the height reached by a geyser, or the levels of rainfall throughout the river's drainage basin determines the water levels of a river in a particular location. This project aims at building observable data driven methods to predict the next occurrence of the phenomena. Specifically, the project wants to evaluate the performance of a new family of algorithms called Hierarchical Tree Clustering algorithms, which use temporal association rules and hierarchica trees in order to model variable structure. You can choose from two different phenomena: Old faithful eruption times, or the high water levels in Passau.



Project type	MSc, BSc seminar.
Starting date	Summer term 2016
Work distribution	10% experiments, 40% theory, 50% programming
Useful knowledge	Machine Learning, Python programming.
Contact at ACTLab	Luis Ignacio Lopera, luis.loperagonzalez@uni-passau.de , ITZ 106