Urban Traffic Visualization

June 7, 4:30PM – 5:30PM

Traffic congestion is a common condition on transportation networks that lies in modern cities all over the world. Visualisation techniques, such as, heat maps or space-time cubes have been used to draw visual metaphors of traffic phenomena and assist domain experts on the analysis of traffic patterns resorting to granular urban data.

Due to the data sparsity nature, we can miss relevant information concerning urban mobility. Therefore, enhanced visualisation techniques that can effectively aid in the traffic modelling, built from multivariate spatiotemporal data, have been introduced to study urban dynamics.

In this sense, the concept of principal curves, described as smooth curves that pass through the middle of a data cloud providing a nonlinear summary of the data, allows us to compare traffic patterns by resorting to the fitted curve with a confidence interval. The proposed technique is data-driven using the real-world case study of the city of Porto, Portugal.