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Tentative Title: New Sensor Technologies and its data Analysis

Abstract
Experiments, simulations and new sensor technologies routinely produce massive data sets, but these are often under-exploited for lack of adequate methods of analysis. The automatic inference of the most relevant features in these data, in a statistical sense, would help dig through these data sets. Indeed, the interesting dynamics is often concentrated in only a small portion of the data and at scales which are not necessarily that of the acquisition. These "interesting features" could be anomalies, in which case their identification is important for filtering experimental data. But these could also be rare events that we would like to monitor. Moreover, these statistically defined features often carry most of the information in the data, like borders in images, or instants where the dynamics of a system change in time series. In this talk, I will present some of the main approaches for inferring such points. I will show how four broad categories can be defined, and give successful examples of analysis each category.