Título: Using SOMbrero for clustering and visualizing complex data

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Resumen:

Over the years, the self-organizing map (SOM) algorithm was proven to be a powerful and convenient tool for clustering and visualizing data. While the original algorithm had been initially designed for numerical vectors, the available data in the applications became more and more complex, being frequently too rich to be described by a fixed set of numerical attributes only. This is the case, for example, when the data are described by relations between objects (individuals involved in a social network) or by measures of resemblance/dissemblance.
This presentation will illustrate how the SOM algorithm can be used to cluster and visualize complex data such as graphs, categorical time series or panel data. In particular, it will focus on the use of he R package SOMbrero, which implements an online version of the relational self-organizing map, able to process any dissimilarity data. The package offers many graphical outputs and diagnostic tools, and comes with a user-friendly web graphical interface based on R-Shiny. Several examples on various real-world datasets will be given for highlighting the functionalities of the package.

Breve CV:

Madalina Olteanu es Doctora en Matemáticas Aplicadas y miembro del Laboratorio **SAMM** (Statistique, Analyse et Modélisation Multidisciplinaire), Maître de Conférences en la **Universidad Paris 1 Panthèon Sorbonne** y Responsable del Máster M2 PRO TIDE Techniques d'Information et de Décision dans l'Entreprise.
Su línea de investigación está marcada por el estudio de las Series Temporales, los modelos autorregresivos en cambio de régimen, clasificación supervisada y no supervisada, y los **mapas autoorganizativos de Kohonen**. Sobre estos temas cuenta con múltiples trabajos publicados en revistas indexadas como Neurocomputing, Neural Networks,Molecular Ecology Ressources o BMC Bioinformatics, así como en Congresos como IWANN, ESANN, WSOM o MASHS.
Es organizadora del MASHS (Modelling and leArning in Social and Human Sciences) y del WSOM (Workshop on Self Organizing Maps).
En el IWANN2017 ha obtenido el premio al mejor trabajo presentado.