



Departamento de Ingeniería de
Comunicaciones
CONFERENCIA

**Multivariate Data Analysis in
Engineering Applications**

impartida por

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Contenido:

The information age has resulted in masses of data in every field. Techniques to analyse this data are therefore becoming more and more important in all branches of engineering as well. Multivariate data analysis refers to a group of statistical and signal processing techniques and algorithms used to analyse data arising from more than one variable, i.e. it deals with the analysis of multivariable or multidimensional data.

Common multivariate data analysis approach usually applied to multivariate data is data dimensionality reduction. The main aim of dimensionality reduction is to try and preserve as much of information present in the data whilst at the same time, reducing data dimensions of the original set. This usually makes the data set easier to understand as well as to process in a more meaningful way.

This presentation will review some of dimensionality reduction techniques and present results achieved by Dr Vuksanovic in applying those techniques during his previous research on various data sets. In particular, multivariate data collected from large distribution grid will be presented and attempt to analyse this data using dimensionality reduction technique known as principal component analysis (PCA) illustrated. Modification of this algorithm, known as singular spectrum analysis (SSA) algorithm will then be explained and the novel idea of using this technique to improve and analyse ground penetrating radar (GPR) measurements explained and discussed.

Dr Branislav Vuksanovic has obtained his PhD in acoustic and signal processing at the University of Huddersfield, UK. Following this, he worked as a research fellow at the universities of Sheffield and Birmingham on biomedical signal and video processing. He is currently working as a Senior Lecturer at the University of Portsmouth, UK.