Το Τμήμα Μαθηματικών και Στατιστικής του Πανεπιστημίου Κύπρου διοργανώνει σεμινάριο την Τετάρτη 02/11/2016, ώρα 11:00-12:00, στην αίθουσα ΣΘΕΕ01/037 στην Πανεπιστημιούπολη.

Ομιλητής: Prof. Gintautas Dzemyda (Institute of Mathematics and Informatics, Vilnius University)

Τίτλος: Multidimensional data visualization: methods, software and applications

Περίληψη: Human participation plays an essential role in most decisions when analyzing data. The huge storage capacity and computational power of computers cannot replace the human flexibility, perceptual abilities, creativity, and general knowledge. A proper interaction between human and computer is essential. Moreover, such an interaction is one of the areas in computer science that has evolved a lot in recent years. Real data in technologies and sciences are often high-dimensional. So it is very difficult to understand these data and extract patterns. One way of such an understanding is to make a visual insight into the data set. Here a hopeful view may be put on the visualization of multidimensional data.

It is often desirable to visualize a data set the items of which are described by more than three features. Therefore, we have multidimensional data and our goal is to make some visual insight into the data set analyzed. For human perception, the data must be represented in a low-dimensional space, usually of two or three dimensions. The goal of visualization methods is to represent the multidimensional data in a low-dimensional space so that certain properties (e.g. clusters, outliers) of the structure of the data set were preserved as faithfully as possible. The dimensionality reduction or visualization methods are recent techniques to discover knowledge hidden in multidimensional data sets.

The main items that are covered by the presentation:
- Traditional methods of multidimensional data visualization: Multidimensional scaling, Sammon's mapping
- Visualization of multidimensional data by Using Neural Networks (SOM, SAMANN)
- Combinations of traditional methods and neural networks
- Nonlinear manifold learning methods
- Software for visualization of multidimensional data
- Application of multidimensional data visualization in medicine
- Visualization of correlation-based data