

Proposed Lecture Topic:

## **Self-Spawning Competitive and Kernel-based Learning for Information Extraction**

### **Abstract:**

Recently data/webmining has received considerable attention. Many data/webmining systems use competitive learning techniques. Usually competitive learning paradigms use the winner-take-all (WTA) strategy and require the proper selection of prototypes. If the number of prototypes is not selected properly, such learning algorithms will result in shared clusters or dead nodes which lead to poor classification performance. In general, selecting the appropriate number of prototypes is a difficult task, because we do not usually know the number of clusters in the input data a priori. It is therefore desirable to develop a learning technique that is able to adaptively generate prototypes to fit the input data samples. In this lecture, I present a new, more powerful competitive learning system, Self-Spawning Competitive Learning (SSCL) and Kernel-based Semi-Competitive Learning approaches (KSCL) that are able to find the natural number of clusters based on the one-prototype-take-one-cluster paradigm and self-spawning validity measure.

To show the effectiveness of the algorithms, I will demonstrate some interesting examples. We have applied our algorithms to still and video image compression with excellent results. We are currently developing a new web access system that offers greater intelligence and flexibility to the user.