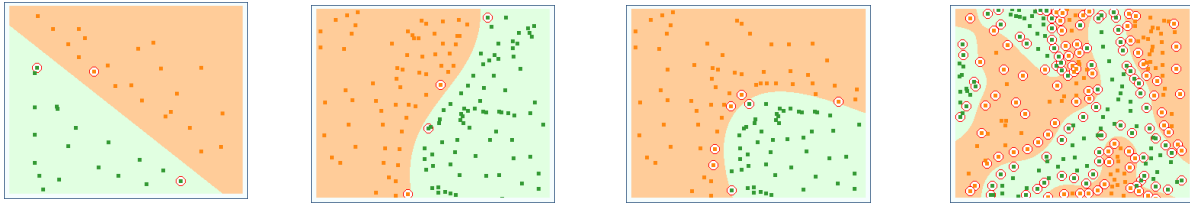# EECE 580B – Support Vector Machines

New course for Spring 2010

Course Description

Support Vector Machines (SVMs) belong to the class of supervised machine learning techniques. Thanks to their high performance and good generalization abilities, SVMs are becoming more and more popular among researchers of many different fields ranging from computer science through financial modeling to bioinformatics.

The following topics will be covered:

- hard-margin and soft-margin SVMs
- concepts of kernels and feature spaces
- basics of optimization and quadratic programming
- elements of statistical learning theory and generalization theory
- implementation issues, SMO algorithm
- selected advanced topics (multi-classification, support vector regression)
- introduction to steganography and application of SVMs to steganalysis

Course Objectives

The focus of this course is on obtaining practical experience with using SVMs, as well as on understanding the core concepts the theory is built on. After this course, students will be able to pick any publicly available SVM library and use it correctly, being aware of potential issues that may occur.

Prerequisities

Linear algebra, calculus and elementary statistics. Basics of programming (MATLAB).

Lecture Times

Tuesday & Thursday 2:50 pm - 4:15 pm, LH-12

Instructors

- Jan Kodovsky, office LSG-606, email: jan.kodovsky@binghamton.edu
- Jessica Fridrich, office EB-Q16, email: fridrich@binghamton.edu

Course Webpage

http://dde.binghamton.edu/kodovsky/svm/