

## Support Vector Machine (SVM) Classifiers

(For Machine Vision and medical imaging)

SVMs are a set of machine learning algorithms for classification and regression. It has better generalization performance than all other existing classifiers. It has been identified as a major tool for the future by Intel. It is also identified as a potential application area for multicore/GPGPU by the Berkeley Research Group.

Algorithm team of NeST Technology development center was working on this and could achieve the following in this interesting area.

- **Design of New Kernels**
  - New hybrid SVM kernels have been constructed and evaluated
- **Applications in Machine Vision**
  - Regularly used for Shape Detection and Pattern Recognition applications in Machine Vision
  - SVM predictor was realized on embedded platforms (optimized for TI's **Davinci and OMAP3** processors)
- **Applications in Medical Imaging**
  - Detection of temporal bone abnormalities from High Resolution Computed Tomography(HRCT) images
  - Classification of Cardiac Single Photon Emission Computed Tomography (SPECT) images and Cardiac Arrhythmia signals
- **Signal Regression**
  - Fast 1-D function approximation