

Localisation of Regularised and Multiview Support Vector Machine Learning

Aurelian Gheondea

Bilkent University, Ankara, Turkey and Simion Stoilow Institute of Mathematics of the
Romanian Academy, Bucharest, Romania

Abstract

We present a few representer theorems for a localised version of the regularised and multiview support vector machine learning problem introduced by H.Q. Minh, L. Bazzani, and V. Murino, *Journal of Machine Learning Research*, **17**(2016) 1–72, that involves operator valued positive semidefinite kernels and their reproducing kernel Hilbert spaces. The results concern general cases when convex or nonconvex loss functions and finite or infinite dimensional input spaces are considered. We show that the general framework allows infinite dimensional input spaces and nonconvex loss functions for some special cases, in particular in case the loss functions are Gâteaux differentiable. Detailed calculations are provided for the exponential least squares loss functions that leads to partially nonlinear problems.