

博士论坛

## 核子空间样本选择方法的核最近邻凸包分类器

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**摘要** 为了保证核最近邻凸包分类器有效地处理大训练集的应用问题, 提出一种核子空间样本选择方法与该分类器相结合。核子空间样本选择方法是一个类内迭代算法, 该算法在核空间里每次迭代选择一个距离选择集样本张成子空间最远的样本。在MIT-CBCL人脸识别数据库的training-synthetic子库上的实验中, 该方法不但可以取得100%的识别率, 而且与未经选样的核最近邻凸包分类器相比, 其执行速度要快许多。

**关键词** [样本选择](#) [凸包](#) [核最近邻凸包分类](#) [核子空间样本选择](#) [模式识别](#) [人脸识别](#)

分类号

## Kernel nearest neighbor convex hull classifier with kernel subspace sample selection method

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### Abstract

Kernel Nearest Neighbor Convex Hull (KNNCH) classifier involves solving convex quadratic programming problems, which requires large memory and long computation time for large-scale problem. Therefore, it is important for KNNCH classifier to reduce the computation complexity without degrading the prediction accuracy. This paper presents a named Kernel Subspace Sample Selection (KSSS) method to choose training samples for KNNCH classifier. KSSS algorithm is an iterative algorithm in one class, which selects the furthest sample to the subspace of the chosen set at each step in kernel space. The experiments on the training-synthetic subset of the MIT-CBCL face recognition database show that our KSSS+KNNCH approach could reach 100% recognition rate with less samples and much faster test speed than KNNCH.

**Key words** [sample selection](#) [convex hull](#) [Kernel Nearest Neighbor Convex Hull \(KNNCH\)](#) [Kernel Subspace Sample Selection \(KSSS\)](#) [pattern recognition](#) [face recognition](#)

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