

Exploring reproducing kernel hilbert space and its application to survival data.

ABSTRACT

In this paper, we will construct a kernel $K(x,y)$ and verify that it is a reproducing kernel in Hilbert space (RKHS). The basic facts and important properties of an RKHS will be reviewed. Diagonal matrices will be used in the construction of the reproducing kernel. We will construct a reproducing kernel and extend the kernel Cox regression model for the survival data of HIV patients by estimating the risk or loss function. The results from analysis indicate that the kernel method is efficient and helpful in predicting the risk or survival of patients.

Keyword: Positive definite kernel; Reproducing kernel Hilbert space; Cox regression model.