

Reproducing Kernel Hilbert Spaces in Probability and Statistics

Since the first papers laying its foundations as a subfield of Complex Analysis, the theory of reproducing kernel Hilbert Spaces (RKHS) has proved to be a powerful tool in many fields of Pure and Applied Mathematics, and in particular in Probability and Statistics. Nowadays, the applied mathematician who wants to understand applications or handle problems involving RKHS has to refer to papers scattered in a huge body of literature. Therefore we felt the need for a textbook gathering the main points of the theory in a unified, friendly and up-to-date fashion, and presenting an accurate picture of its applications in Probability and Statistics.

The fact that reproducing kernels are covariance functions explains the early role of RKHS in inference problems on stochastic processes. The continuous rise of applications of RKHS theory and the recent burst of the field of Support Vector Machines attest that the scope of its applications is far from being exhausted.

Reproducing Kernel Hilbert Spaces in Probability and Statistics covers theoretical questions, including the latest extension of formalism, as well as computational issues. It focuses on promising and related applications, including statistical signal processing, nonparametric curve estimation, random measures, limit theorems, and learning theory. The text is geared to graduate students in Statistics, Mathematics or Engineering (or to scientists with an equivalent level). The book contains a broad variety of exercises, and may be used as a textbook at a postgraduate level.

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