

CURSO DE DOCTORADO

Mathis Deronzier

Universidad de Valladolid

Reproducing Kernel Hilbert Spaces: From Kernel Embeddings of Measures to Gaussian Processes

Abstract:

This short course will be organized in three lectures::

Lecture 1 (1 hour): Introduction to RKHS.

We will introduce the basic definitions and notions related to kernels and RKHS. We will sketch the proof of the Moore–Aronszajn theorem, which associates a unique RKHS to every positive definite kernel. Time permitting, we will present further properties of this correspondence.

Lecture 2 (2 hours): Maximum Mean Discrepancy (MMD).

Mostly following Christian Guilbart's thesis, "Étude des produits scalaires sur l'espace des mesures : estimation par projections, tests à noyaux" we will present kernel embeddings of probability measures and show how, under suitable assumptions on the kernel, the resulting distance metrizes the weak topology on the space of probability measures.

Lecture 3 (2 hours): Support of a Gaussian process and its RKHS.

We will study the link between the support of a Gaussian process and its associated RKHS, following the first part of the paper by A. W. van der Vaart and J. H. van Zanten, "Reproducing Kernel Hilbert Spaces of Gaussian Priors".

Lectures will be given in five one-hour sessions, on Tuesdays and Thursdays, starting on October 15th.

Seminario del IMUVa, Edificio LUCIA

Jueves 15 de Octubre de 2026 (13:00)

Organiza: G.I.R. Probabilidad y Estadística Matemática

