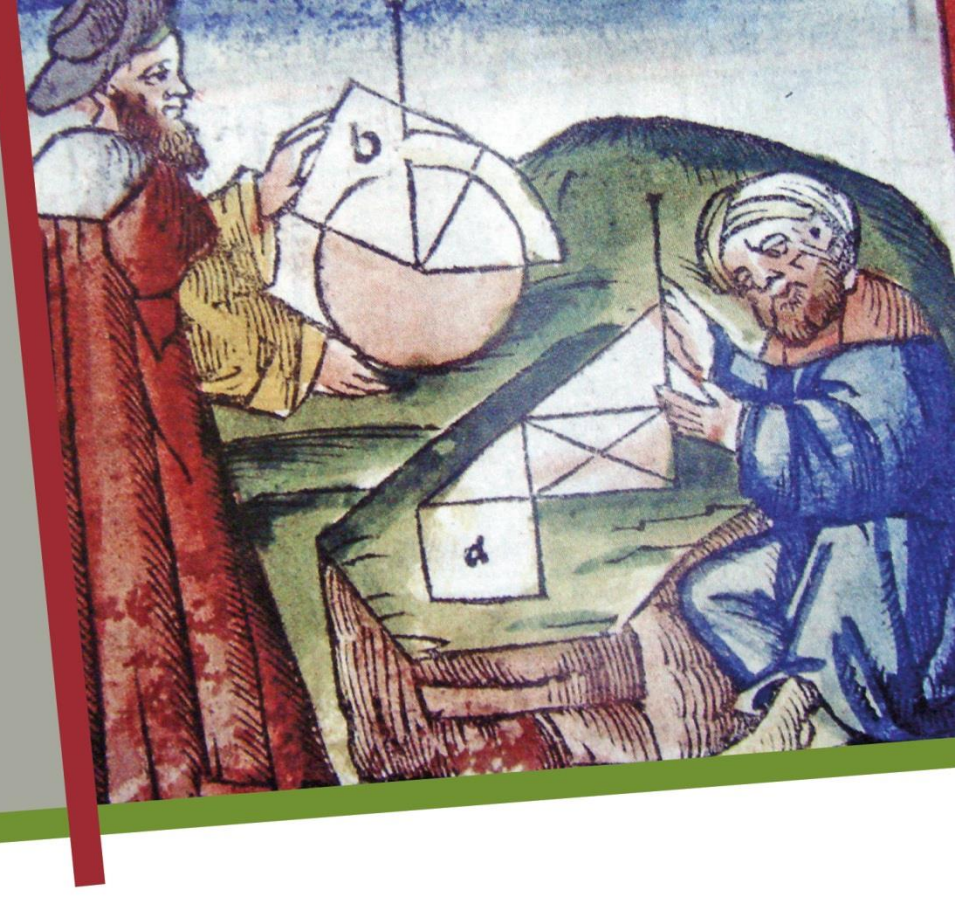
UNIVERSITÀ DEGLI STUDI
DI TRENTO

Dipartimento di Matematica



# SEMINARI

## *Mathematics for Data Science, Artificial Intelligence, and Machine Learning*

**Wednesday, May 18, 2022 – at 4:30 p.m.**

**Seminar Room "-1", Povo0, Via Sommarive 14,**
**and online through the ZOOM platform**
**https://unitn.zoom.us/j/81698041878 (Passcode: 028649)**


## Ernesto De Vito

**(Università di Genova)**


# Understanding Neural Networks with Reproducing Kernel Banach Spaces


## Abstract:

Characterizing the function spaces corresponding to neural networks can provide a way to understand their properties. The talk is devoted to show how the theory of reproducing kernel Banach spaces can be used to characterize the function spaces corresponding to neural networks. In particular, I will show a representer theorem for a class of reproducing kernel Banach spaces, which includes one hidden layer neural networks of possibly infinite width. Furthermore, I will prove that, for a suitable class of ReLU activation functions, the norm in the corresponding reproducing kernel Banach space can be characterized in terms of the inverse Radon transform of a bounded real measure. The talk is based on joint work with F. Bartolucci, L. Rosasco and S. Vigogna.


**Contact person:** Gian Paolo Leonardi


**CONTATTI**
**Staff di Dipartimento - Matematica**
**tel. 0461 281508-1625-1701-3786**
**dept.math@unitn.it**
**www.maths.unitn.it**


2018-2022
DIPARTIMENTO
DI ECCELLENZA
MIUR