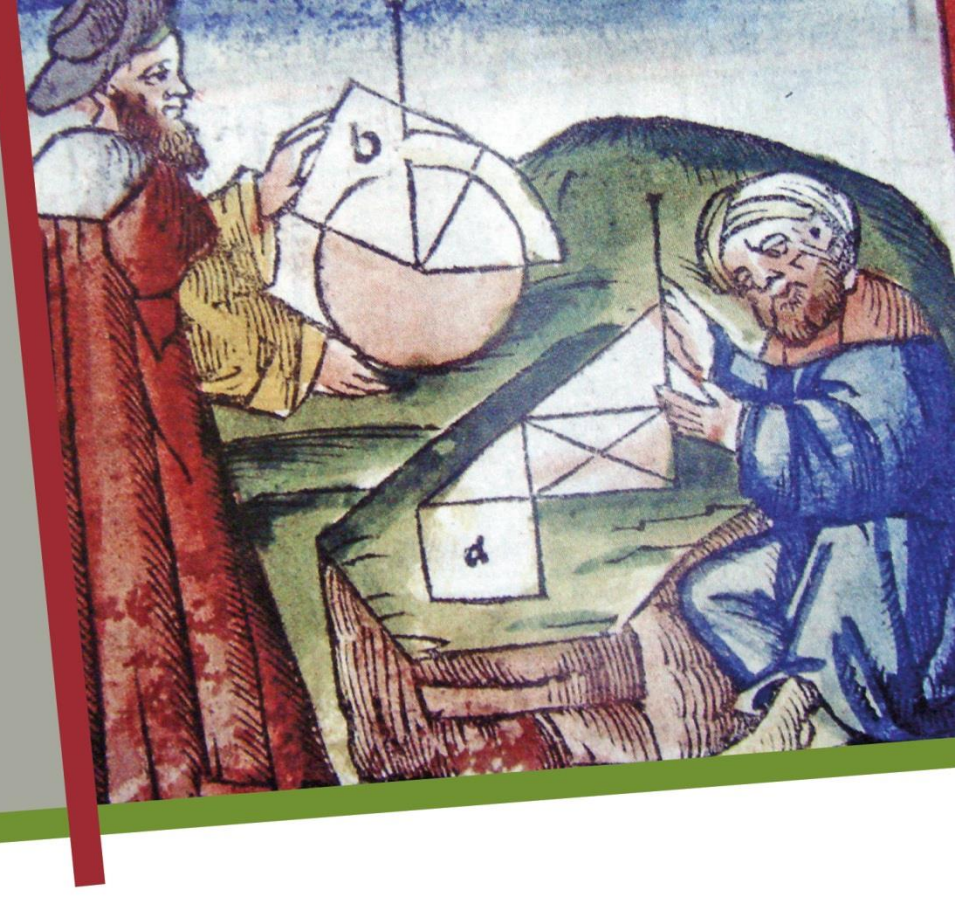
UNIVERSITÀ DEGLI STUDI
DI TRENTO

Dipartimento di Matematica



SEMINARI

Mathematics for Data Science, Artificial Intelligence, and Machine Learning

Wednesday 6 April 2022 – at 3:30 p.m.

Room "A104", Povo1, Via Sommarive 5,
and online through the ZOOM platform
https://unitn.zoom.us/j/81698041878 (Passcode: 028649)

David Sutter

(ETHZ, IBM Zurigo)

Towards a quantum advantage in machine learning

Abstract:
Arguably one of the central challenges in the field of quantum computing is to demonstrate a quantum advantage. This means solving a practically relevant problem faster or better on a current quantum computer than on any classical supercomputer. Machine learning problems may be good candidates for achieving this ambitious goal in the close future. In this talk I will explain why we think this is the case and which difficulties need to be circumvented to demonstrate a quantum advantage. In particular, we need mathematical tools that allow us to quantify the power of quantum models. I will discuss a recently introduced capacity measure called "effective dimension" and illustrate what it tells us about the power of quantum neural networks.
[Based on joint work with Amira Abbas, Alessio Figalli and Stefan Woerner [See https://arxiv.org/abs/2011.00027 and https://arxiv.org/abs/2112.04807].

Contact person: Gian Paolo Leonardi

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

Q@TN

2018-2022
DIPARTIMENTO DI ECCELLENZA
MIUR