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# Seeing the invisible with inverse problems: from mathematics to artificial intelligence

## Giovanni ALBERTI
**University of Genova**

**Friday 19th May 2023**
**5:00 PM Conference Hall**
**ex Ospedale Militare**

The Son of Man by René Magritte
https://www.flickr.com/photos/rocor/41731081245

In medical imaging, one is interested in obtaining images of interior organs without directly seeing them, by means, for example, of a CT scan or of an ultrasonography. In nondestructive testing, the aim is to assess the internal structure of a material without destroying it. These are typical examples of inverse problems, which consist in the recovery of an unknown physical quantity from indirect measurements. In this seminar, by means of several examples, I will describe the mathematics of inverse problems, and discuss the main methods used to solve them, from those based on the theoretical analysis of inverse problems, to the modern approaches based on machine learning.

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