



## Financial Applications of Unsupervised Machine Learning

Gabriele D'Acunto, PhD  
CENTAI Institute

### Course objectives

The purpose of the course is to provide students with concrete examples of possible applications of unsupervised machine learning in the financial world. To this end, the course focuses on case studies implemented in Python.

### Topics

- Introduction to main ML branches
- Unveiling graph structures from data
- Dimensionality reduction
- Clustering

### Prerequisites (recommended, not mandatory)

- Basic knowledge of Machine Learning
- Familiarity with Python programming language

### About the Lecturer

Gabriele D'Acunto received his M.Sc. in Physics of Complex Systems from the University of Turin, Italy, in 2017, and his Ph.D. in Data Science from Sapienza University of Rome, Italy, in 2024. He is a postdoctoral researcher at the CENTAI Institute in Turin, Italy. From 2017 to 2019, he was a financial data scientist at Fondaco SGR in Turin, Italy, and from 2020 to 2022, he was a junior researcher at the Algorithmic and Data Analytics Lab at the ISI Foundation, also in Turin. His research interests include causal discovery and abstraction, signal processing, continuous optimization, and machine learning for finance.