Coarse isometry of finite metric spaces

ABSTRACT
Finite metric spaces are the object of study in many data analysis problems. We examine the concept of coarse isometry between finite metric spaces, to analyze properties of the spaces that are invariant under strictly increasing rescaling of the distance functions. In this talk, we will consider some of the possible complete and incomplete invariants for coarse isometry and we will introduce a dissimilarity measure that assesses how far two spaces are from being coarsely isometric. Furthermore, we will compare these ideas with the theory of persistent homology, the main tool adopted in Topological Data Analysis, to study how the two concepts are related.

BIOGRAPHY
Alessandro De Gregorio graduated in Mathematics from the University of Bologna. He is interested in studying geometrical and topological methods applied to Data Science. Currently, his research focuses on rescaling invariant approaches for Topological Data Analysis.