

Deformable objects are ubiquitous in the world surrounding us, on all levels from micro to macro. The need to study such shapes and model their behavior arises in a wide spectrum of applications, especially in medical imaging. In recent years, non-rigid shapes have attracted a growing interest, which has led to rapid development of the field, where state-of-the-art results from very different sciences - theoretical and numerical geometry, optimization, linear algebra, graph theory, machine learning and computer graphics, to mention a few - are applied to find solutions. In this lecture, I will overview some state-of-the-art methods in the field of shape analysis through a consistent and rigorous mathematical framework of metric geometry. Modeling shapes as metric spaces provides a common denominator for many problems in shape analysis, such as similarity and correspondence, which will be exemplified.