

Lecturer: Dan Raviv
Department of Computer Science, Technion

Title: Symmetries of non-rigid shapes

Abstract:

Symmetry and self-similarity is the cornerstone of Nature, exhibiting itself through the shapes of natural creations and omnipresent laws of physics. Since many natural objects are symmetric, the absence of symmetry can often be an indication of some anomaly or abnormal behavior. Therefore, detection of asymmetries is important in numerous practical applications, including crystallography, medical imaging, and face recognition, to mention a few. Conversely, the assumption of underlying shape symmetry can facilitate many problems in shape reconstruction and analysis. Traditionally, symmetries are described as extrinsic geometric properties of the shape. While being adequate for rigid shapes, such a description is inappropriate for non-rigid ones. Extrinsic symmetry can be broken as a result of shape deformations, while its intrinsic symmetry is preserved. We pose the problem of finding intrinsic symmetries of non-rigid shapes and propose an efficient method for their computation.

*Research under the supervision of Prof. Ron Kimmel, in collaboration with Dr. Alex Bronstein and Dr. Michael Bronstein.