מכון ויצמן למדע

THE WEIZMANN INSTITUTE OF SCIENCE

FACULTY OF MATHEMATICS AND COMPUTER SCIENCE

Vision and Robotics Seminar

Room 1 ,Ziskind Building
on Monday, Nov 21, 2016
at 12:15

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Emanuele Rodola': USI Lugano; Or Litany: Tel Aviv University

Spectral Approaches to Partial Shape Matching

Abstract:

In this talk we will present our recent line of work on (deformable) partial shape correspondence in the spectral domain. We will first introduce Partial Functional Maps (PFM), showing how to robustly formulate the shape correspondence problem under missing geometry with the language of functional maps. We use perturbation analysis to show how removal of shape parts changes the Laplace-Beltrami eigenfunctions, and exploit it as a prior on the spectral representation of the correspondence. We will show further extensions to deal with the presence of clutter (deformable object-in-clutter) and multiple pieces (non-rigid puzzles). In the second part of the talk, we will introduce a novel approach to the same problem which operates completely in the spectral domain, avoiding the cumbersome alternating optimization used in the previous approaches. This allows matching shapes with constant complexity independent of the number of shape vertices, and yields state-of-the-art results on challenging correspondence benchmarks in the presence of partiality and topological noise.