An Introduction to Global Topological Robotics

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Abstract

In topological robotics we use topological tools and methods to analyze problems arising in robotics. Applications of topology to robotics are mainly of two types: local and global. In local applications we study all possible positions and motions of an appendage (usually the robot arm) while in global applications the object is to analyze all possible locations and motions of many robots in a given space.

Today's talk will be on global topological robotics where the underlying space is a metric graph. I will try to indicate how some fundamental concepts and machinery of topology (such as connectedness, homotopy, cohomology) is relevant for robotics without assuming much background (except a modicum of mathematical maturity).

Date: Wednesday, October 19, 2016
Time: 15:00
Place: Erdal İNÖNÜ Seminar Hall, Ataköy Campus, İstanbul Kültür University