

An Incursion into Optimal Control and Geometric Optimization

J. Cortes Monforte

Abstract

Abstract: Optimal control and optimization problems are a widespread topic in several scientific disciplines and engineering applications. In the first part of this talk, we present a collection of results on optimal control theory from a geometric perspective. We pay particular attention to the consistency of the equations and the role of symmetry principles. In the second part, we focus on geometric optimization problems, i.e., optimization problems induced by geometric objects. We examine a class of disk-covering and sphere-packing problems, and investigate its relationship with robotic coordination algorithms. The technical approach relies on tools from Geometric Mechanics, Differential and Computational Geometry and Nonsmooth Analysis.