Optimal control, Hamilton-Jacobi equations and singularities in euclidean and riemaniann spaces

Piermarco CANNARSA & Carlo SINESTRARI

Università di Roma “Tor Vergata”

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Outline

1. Introduction to optimal control and Hamilton-Jacobi equations
   - Examples and problem set-up
   - Existence of solutions
   - Necessary conditions
   - Dynamic Programming
   - Hamilton-Jacobi equations
2. Introduction to semiconcave functions, generalized differentials, and singularities
   - Semiconcavity of value functions
   - Semiconcave functions
   - Generalized differentials
   - Singular sets
   - Rectifiability of singular sets

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