

P-02

Topological complexity and efficiency of motion planning algorithms

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We introduce a variant of Farber's topological complexity, defined for smooth compact Riemannian manifolds, which takes into account only motion planners with the lowest possible “average length” of the output paths. We prove that it never differs from topological complexity by more than 1, thus showing that the latter invariant addresses the problem of the existence of motion planners which are “efficient”.