Abstract
General formulations are presented in this paper to determine the best position and orientation of a desired path to be followed by a redundant manipulator. Two classes of problem are considered. In the first, a single manipulator is index of kinematic performance associated to one path point must be improved as much as possible. In the second case distinct indices of kinematic performance, corresponding to different points of the path, are to be optimized. Constraints are taken into account in order to guarantee the accessibility to the whole desired task. Several case studies are presented to illustrate the effectiveness of the method for planar and spatial manipulators.

Keywords
Optimization, redundant manipulators, path placement, motion planning, kinematic performances.