

TOPOLOGY BASED SELECTION OF CLOSED KINEMATICS CHAINS (MANIPULATOR) USING INFORMATION THEORY

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Abstract

In the literature, a number of single and multidegree of freedom planar kinematic chains are available; Multi degree freedom chains can be considered for the application as platform type robots. A kinematic chain is identified by its no. of i) Link and their types ii) No. of joints and their types iii) The loops, their size and adjacency. The significance of links, joints and loops of the chain is explained and related to some design invariants, which in turn indicates the possible behavior of the chain. The performance of chain is quantified in terms of entropy using the mathematical equation, which has strong resemblance to information theory developed in the area of communication. The numerical measures developed used to compare the distinct kinematic chain with the same no. of links and degree of freedom for motion generation and transmission

Keyword: kinematic chain, entropy, motion, rating, and degree of freedom.