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TORQUE AT JOINTS OF EIGHT AXIS ARTICULATED ROBOT ARM

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Abstract

The design of a robot arm as a device for manipulating objects or performing certain tasks requires the knowledge of the forces and torques needed to derive its joints. These forces and torques are due to static and dynamic loads. Static force analysis deals with manipulators at rest and dynamic force analysis deals with them in motion. This paper aims to develop a mathematical algorithm for computing the joint forces and moments of robot arms. Each axis is alternatively referred to as degree of freedom (DOF) that is something to do with motion in a system or a structure. Since the term 'axis' is adopted to represent an element that creates motion, 3-axis positioning means three DOF's.

Keywords: Robot arm, torque, force, static analysis, Joints