

Innovation Design and Applications of Robotic Manipulators in Intelligent Manufacturing System

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Extended Abstract

Due to the potential high rigidity, high accuracy, and high loading capacities of parallel manipulators, research and development of various parallel mechanism applications in engineering are now being performed more and more actively in every industrial field, and it is considered a key technology of robot applications in industry in the future.

In this talk, the rational of using parallel robots for parallel robotic machines is discussed and explained. A comparative study is carried out on some successful parallel robotic machines and conventional machine tools. Meanwhile, the latest research activities on parallel manipulator and its innovative design in the Laboratory of Advanced Robotics and Mechatronics at York University are introduced, they are: parallelization of serial robots, parallel robotic machines, reconfigurable robotic manipulators, reconfigurable modular moving robots as well as the applications of parallel manipulators in micro-motion device, parallel robot based sensors, exoskeleton, rehabilitation robot and rescue robot.