

# **NEXT LEVEL INNOVATION IN ROBOTICS AND AUTONOMY**

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**Title: Applications of robust and adaptive control schemes on mobile manipulators: An overview**

Once the robot architecture is chosen, its optimal design parameters (w.r.t. given specifications) must be found. However, a robot is not only a mechanical architecture, but is also slaved by a controller that impacts its performance. Mobile manipulators similar to many engineering applications, it is impossible or very difficult to obtain an exact dynamic model of the robot, due to many unavoidable reasons. Moreover, presence of external disturbances is inevitable in robots. Good performance cannot be reached without advanced controllers. Therefore, this talk presents an overview of performance analyses of different advanced motion controllers using nonlinear and intelligent schemes to increase the robot motion performance and autonomy. However, this talk focusses primarily on the research carried out at the Indian Institute of Technology Indore presenting recent developments in motion control techniques, application of these techniques on laboratory based prototypes to demonstrate the effectiveness and scope of future work extending these developments in service and field robots