Multi-dimensional Force Sensor for Robot

中文摘要：

多维力传感器是一类重要的机器人传感器，是实现机器人力感知和力控制的保障。本报告首先简要说明了机器人多维力传感器的功能，以及多维力传感器的组成与原理，介绍了多维力传感器的精度指标，特别是维间耦合误差指标。接着我们分析了多维力传感器的关键技术，介绍了我们在多维力传感器研究方面取得的主要进展。最后介绍了我们研制的多维力传感器在航天、医疗、汽车等领域的典型应用。

Abstract:

Multi-dimensional force sensor is a kind of important sensor for robot, it is a key element of robot force perception and force control. This report firstly outlines the functions of multi-dimensional force sensors for robots, along with their composition and underlying principles. Then we introduce the accuracy index of multi-dimensional force sensor, especially the inter-dimensional coupling error index. Next, we analyze the key technologies of multi-dimensional force sensor. Furthermore, we present our primary advancements in the research of multi-dimensional force sensors. Lastly, we discuss the typical applications of our developed multi-dimensional force sensors in various fields such as aerospace, healthcare, and automotive.