

Robots Moving Closer to Humans

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Robots! Robots on Mars and in oceans, in hospitals and homes, in factories and schools, robots fighting fires, making goods and products, saving time and lives. Robots today are making a considerable impact on many aspects of modern life, from manufacturing to healthcare. Reaching for the human frontier, robotics is also vigorously engaged in the growing challenges of new emerging domains. Interacting, exploring, and working with humans, the new generation of robots will increasingly touch people's lives. Unlike the industrial robotics domain where the workspace of machines and humans can be segmented, applications of intelligent machines that work in contact with humans are increasing, which involve e.g. haptic interfaces and teleoperators, cooperative material-handling, power extenders and such high-volume markets as rehabilitation, physical training, entertainment. In this context, it is customary to distinguish between Cognitive Human-Robot Interaction (cHRI) and Physical Human-Robot Interaction (pHRI). This talk is aimed at discussing a number of issues in pHRI concerning with safety, dependability and dexterity. The presentation will be accompanied by videos illustrating experimental tests on both conventional and new lightweight robots endowed with force and vision sensors.