

Physical Human-Robot Interactions from medical robotics to assistive technologies

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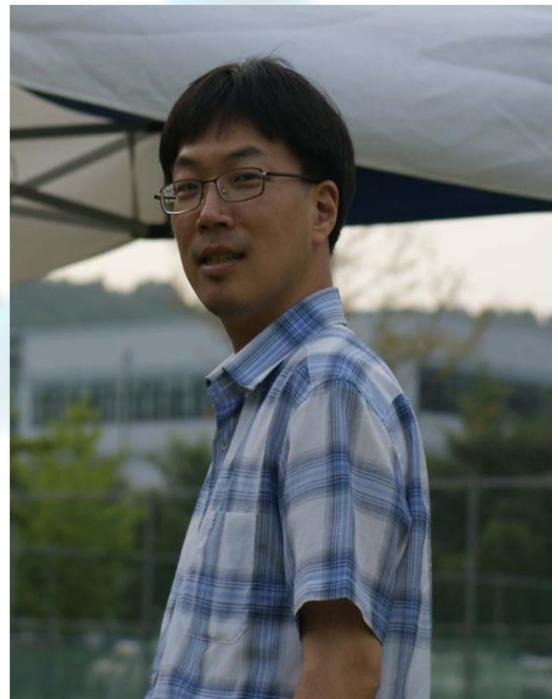
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要旨

Inspired by imminent an aging society and safety of patients in an operating room, physical human-robot interaction (pHRI) has been a key technology in robotics for everyday life environments including surgical, rehabilitation and cellular manipulation applications. Served as a cornerstone of pHRI, haptics has been defined as manual or tactile interactions with environments, such as exploration for extraction of information or manipulation though human or machine hands for modifying the environments. Combined with the frontier of physical human robot interactions (pHRI), haptics has the potential to increase the quality and capability of human- machine interaction by integrating sense of touch. Several applications already use this idea; these include medical trainers in virtual environments, telemanipulation and biosignal based human interface devices for elderly people requiring rehabilitation and assistive device in daily life. Behind this exciting research field, the modeling of biomechanical system and signal processing of biosignals including brain-machine interface should work. The topics will also cover from the development of haptic applications for biomedicine, to the real time assistive technologies based on noninvasive biosignals sensing, which are investigated at BioRobotics Lab. in KAIST.



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