

pHRI: Dance Partner Robots and a Co-worker Robot PaDY

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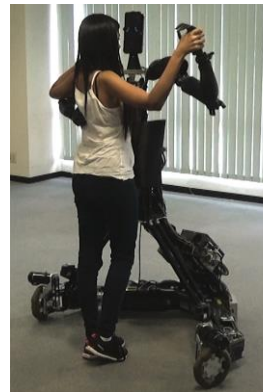
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A dance partner robot, PBDR (Partner Ballroom Dance Robot), developed in our laboratory, was unveiled and gave dance demonstrations in EXPO 2005, Aichi, Japan. PBDR dances waltz as a female dancer together with a human male dancer. One of the key research issues for the development of the dance partner robot was how to read the male dancer's lead, or how to estimate the male dancer's intention. RoboDANTE (Robot DANce TEacher) is a dance instructor robot and teaches its partner how to dance based on the concept of Progressive Teaching. These robots, as research platforms for Physical Human-Robot Interaction (pHRI), have given us opportunities to reconsider issues relating to pHRI. We first introduce the dance partner robots, PBDR and RoboDANTE, to discuss issues relating to pHRI. Then, a co-worker robot, PaDY, is introduced as an example of industrial applications of pHRI.



PBDR



RoboDANTE



Dr. Kazuhiro Kosuge is a Tohoku University Distinguished Professor, the Department of Robotics, Tohoku University, Japan. He received the B.S., M.S., and Ph.D. in Control Engineering from the Tokyo Institute of Technology, in 1978, 1980, and 1988 respectively. From 1980 through 1982, he was a Research Staff in the Production Engineering Department, DENSO Co., Ltd. From 1982 through 1990, he was a Research Associate in the Department of Control Engineering at Tokyo Institute of Technology. From 1990 to 1995, he was an Associate Professor at Nagoya University. From 1995, he has been at Tohoku University. He is an IEEE Fellow, a JSME Fellow, a SICE Fellow, a RSJ Fellow, a JSAE Fellow, a member of IEEE HKN. He served as President of IEEE Robotics and Automation Society for 2010-2011, and Division X Director of the Board of Directors of IEEE for 2015-2016. He is 2019 IEEE Vice President for Technical Activities.