

# A Dance Partner Robot and its Real World Application “PaDY”

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## Summary:

A physical human-robot interaction is one of key issues for developing a robot in human environments working together with its partner(s). A dance partner robot, which has been developed in our laboratory and dances a waltz with a male dancer, is a research platform for the human-robot interaction. How to estimate the following step lead by the male dancer, or how to read the male dancer's lead, or how to estimate its partner's intention, was one of the key issues for the development of the robot. In this presentation, we will first consider issues relating to physical human-robot interaction and introduce what we have done so far for the dance partner robot. Then, we will consider how the concept of the dance partner robot could be utilized in real world applications. As one of the applications of the human-robot interaction and coordination, PaDY (Parts/tools-Delivery-to-You robot) is introduced. PaDY is a robot, which is being developed for automobile assembly process and assists its partners to assemble parts to a vehicle. Finally an overview of robotics research is introduced and will show what we have to do for the future.

## Short Bio:

Dr. Kazuhiro Kosuge is a Professor in the Department of Bioengineering and Robotics at 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, Nippon Denso Co., Ltd. (DENSO Co., Ltd. at present). 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 received the JSME Awards for the best papers from the Japan Society of Mechanical Engineers in 2002 and 2005, the RSJ Award for the best papers from the Robotics Society of Japan in 2005. He is an IEEE Fellow, a JSME Fellow, a SICE Fellow, and a RSJ Fellow. He is President of IEEE Robotics and Automation Society for 2010-2011.