國立台灣大學機械工程學系暨研究所

**演 講 公 告**

**Safe Assistive Robots**

**for Encouraging Human Physical Activities**

While the main motivation of research on physical human–robot interaction is to assist humans, the maintaining safe interactions between robots and humans is the most important consideration. In addition, the assistive robots should enhance and encourage the physical activities of the users, and improve their quality of life. We have introduced a concept of passive robotics and have proposed several passive intelligent systems which are not only simple structure and safe but also offers many functions similar to those found in active systems. The passive systems are controlled by the servo brakes, steering wheel, spring, clutch, or continuous variable transmission (CVT) to support the motion of the humans. These passive systems are intrinsically safe because they cannot move unintentionally under a driving force.

We have also proposed a wearable Haptic Feedback Device to convey intuitive motion direction to the user through haptic feedback based on vibrotactile illusions. It would be useful for motor learning and motion guidance in various domains such as sports, rehabilitation, and industry. By using the haptic feedback, the user has to reproduce the motion using his own muscles, and a haptic display provides feedback related with the motion.

**Speaker**

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**Yasuhisa Hirata** is a Professor in the Department of Robotics at Tohoku University, Sendai, Japan. He received the B.E., M.E., and Ph.D. degrees in mechanical engineering from Tohoku University in 1998, 2000, and 2004, respectively. From 2000 to 2006, he worked as a research associate in the Department of Bioengineering and Robotics at Tohoku University. From 2006 to 2016, he was an associate professor in the Department of Bioengineering and Robotics at Tohoku University. He is currently serving as an associate vice-president of IEEE Robotics and Automation Society (RAS) for Technical Activity Board, Co-chairs of IEEE RAS Technical Committee on Rehabilitation and Assistive Robotics, Senior Editor of Advanced Robotics, etc.

**時 間 及 地 點**

108年8月23日(星期五) 11:00 ~ 12:00

**台大工學院綜合大樓742室**