Prof. Dr. Akira Uchiyama

Associate Professor

Mobile Computing Lab., Graduate School of Information Science and Technology, Osaka University, Japan.

Keynote title: Wireless Sensing for Future Smart Home and Society.

Bio

Akira Uchiyama received M.E. Degree and Ph.D. in Information and Computer Science from Osaka University in 2005 and 2008, respectively. In 2008, he was a visiting scholar at the University of Illinois at Urbana-Champaign.

From 2007 to 2009, he was a research fellow of the Japan Society for the Promotion of Science (JSPS). He joined Osaka University as an assistant professor in 2009 and has been serving as an associate professor since 2021.

From 2019 to 2023, he was a PRESTO researcher with the Japan Science and Technology Agency (JST), Japan. His research interest includes mobile computing, ubiquitous and pervasive computing, healthcare, and human activity recognition, with a focus on wireless technologies.

Wireless Sensing for Future Smart Home and Society

Abstract:

Wireless sensing is a promising technology to understand contexts such as human activi and object movements by observing changes of Radio Frequency (RF) signals, including Wi-Fi and mmWave.

In this talk, I will introduce our project focused on fundamental research for maintenance-free sensing leveraging RF signals. We have developed an ultra-low power tag that converts states of objects, such as human movements, into RF signal changes reflected from the tag.

Additionally, I will discuss a project on Integrated Sensing and Communication (ISAC), which repurposes cellular networks originally designed for communication to perform sensing tasks. This presentation will highlight our current progress and outline future directions.