Special Issue on Software, Algorithms, and Applications Using Sensors and Networks (1)

Preface

Recent advances in computer and networking technologies have enabled the enhanced interpretation and utilization of sensor data in the popular fields of cyber-physical systems (CPS), machine-to-machine (M2M) systems, and the Internet of Things (IoT). Researchers of sensing technologies provide the technological means to capture environmental, technical, physiological, and other data. They provide the raw materials on which applications and services will be built. Sensor data are the basis for a smart world and have opened up a new field in computing.

Of all the emerging areas in computer and networking technologies, we are witnessing the most significant development in machine learning techniques including deep neural networks. Machine learning further extends the possibility of utilizing the real-world data obtained by various kinds of sensors.

This special issue includes the research results of sensor-based computing and networking. The first paper presents a method of using a neural network for the data acquired with smartphones. The indoor and outdoor detection problem is solved using this method. The second and third papers describe applications with wearable devices. The fourth paper elaborated how optical sensors can detect fingerprints in a robust manner using image processing. The other papers deal with networking aspects of sensor-based systems. All the papers give insight into the sophisticated usage of sensors.

I hope this special issue helps the readers find new research directions in sensing technologies.

Yoshito Tobe
Professor, Aoyama Gakuin University
Japan