Plenary III

Speaker: Prof. Toru Yamaguchi
Faculty of System Design
Tokyo Metropolitan University
Japan

Date: August 21, 2014

Title:

User Model based System Integration Toward from Human Sensing Big Data to Community Centric System Integration

Abstract:
Developing of various sensors have been helping to improve human sensing. Recently, these sensor is small enough to wearable. Now, one of the hot topics is how to analyze the big data which is collected from various sensors. We have to explore the way to utilize the data. Therefore, we focused on user-model which is constructed from the sensor data by using data mining technic. The user-model represents personal characteristics, and the model is basis for developing and customize a service. We think that the user-model is one of the keywords for expanding from human centric to community centric. Human centric systems aim to support a user by recognizing the user's motion, interest, and so on. However, the relationship in human community is important in life. We aim to support to creating the relationship between human and human. The user-model is useful tool to cluster the users, and connect a user and the other user. Conventional research is focused on divide some groups with similarity. The group includes the users who have similar physical ability, interests, hobby, and so on. We focused on mutual assistance. To find a relation of mutual assistance, we proposed "Intermediate representation" for human. The intermediate representation represents a definite personality, physical ability, interests of a user.

In this speech, we talk about our concept for community centric by using the user-model and intermediate representation. Firstly we show human sensing system for obtaining users motion and other activity. Secondly, we present the method of acquiring the user-model and intermediate representation from the sensing data. We also present the method of system integration. Finally, we discuss future works.

Biography:
Toru Yamaguchi received his B.S. and M.E. in electrical engineering from Chiba University, Japan, in 1979 and 1981. He received his Ph.D. in computer science from Chiba University in 1992. He was with the System Software Laboratory of Toshiba Corp. in Tokyo, Japan, from 1981 to 1993 and worked in the field of intelligent systems using fuzzy and neural network systems. He was also with the Laboratory for International Fuzzy Engineering (LIFE) Research as a chief researcher of the Fuzzy Associative Memory (FAM) project. Further, he was an Associate Professor at Utsunomiya University in Japan, from 1993 to 2000. He has been a full Professor at the Faculty of System Design of Tokyo Metropolitan University since 2000. He has also been participating in Precursory Research for Embryonic Science and Technology (PRESTO) of the Japan Science and Technology (JST) Corporation. He was an Associate Editor of IEEE Transactions in Industrial Electronics in 2000. His current interests are in soft computation, neural computation, fuzzy computation, and chaotic computation. Moreover, Dr. Yamaguchi was a recipient of the 1994 Paper Award from the Japan Society for Fuzzy Theory and Systems (SOFT). He is a member of the Institute of Electrical Engineers of Japan (IEEJ), the Japan Neural Network Society (JNNS), SOFT, Society of Instrument and Control Engineers (SICE), and the Robotics Society of Japan (RSJ). He was the executive board of SOFT and RSJ. Now, he is the president of the "KUKANCHI" section in the system integration division of SICE.