UNIVERSITA` CAMPUS BIO-MEDICO DI ROMA

Laboratorio di Misure e Strumentazione Biomedica

Seminario

Sampling methods for physiological signals in Internet of Medical Things systems

Luca De Vito
Department of Engineering
University of Sannio

Abstract:

Wearable measurement systems have been currently spreading as personal devices for monitoring physiological parameters. In last years, such systems are going to be integrated in Internet of Things (IoT) systems where several acquisition nodes are simultaneously connected and managed. The acquisition nodes must comply the size and energy consumption requirements of wearable devices, while allowing the streaming of sampled signals such as the Electrocardiogram and the respiration wave and providing enough accuracy to guarantee the biosignal integrity. This is even harder when the device is connected to Wide Area Network IoT systems, characterized by a lower bandwidth and a higher power consumption.
To face these problems, efficient sampling strategies can be adopted aiming to reduce the data rate to be transmitted and as a consequence the energy consumption.
The seminar will present the state of art of sampling methods for physiological signals and will in particular deal with methods based on compressed sensing. Compared with the others, such methods offer a lower computational load on the acquisition node, by moving it to the reception side, which in the case of IoT systems, is usually realized in the cloud.

Biography

Luca De Vito received the master's (cum laude) degree in software engineering and the Ph.D. degree in information engineering from the University of Sannio, Benevento, Italy, in 2001 and 2005, respectively. In 2002 he joined the Laboratory of Signal Processing and Measurement Information, University of Sannio, where he was involved in research activities. In 2008, he joined the Department of Engineering, University of Sannio, as an Assistant Professor in electric and electronic measurement. He became Associate Professor in the same Department in Jan. 2020. In Aug. 2018 he received the National Academic Qualification as Full Professor. He is member of the IEEE since 2010, he is member of the IEEE Instrumentation and Measurement Society (IMS), of the IEEE Aerospace and Electronic System Society, and of the IEEE Standards Association. He is Senior Member of the IEEE since 2012. He member of the Armed Force Communication and Electronics Association (AFCEA) and is Young President of the AFCEA Naples Chapter. He is editor of Measurement and Measurement:Sensors (Elsevier) and Chapter Chair Liaison of the IEEE IMS. He was Technical Program Co-chair of the IEEE International Symposium on Medical Measurements and Applications (MeMeA) in 2015, 2016 and 2017.
He published more than 140 papers on international journals and conference proceedings, mainly dealing with measurements for the telecommunications, data converter testing and biomedical instrumentation.

IEEE Sensors Council ITALY CHAPTER

Università Campus Bio-Medico di Roma
IEEE Student Branch

Mercoledì 8 aprile 2020 - ore 12:00

Aula C18 - CESA

Università Campus Bio-Medico di Roma

Via Álvaro del Portillo, 5

Info: segreteriaingegneria@unicampus.it