

### **S3-1.10**

## **Techniques for Human Body Biomedical Signals Processing and Storing**

Anatolie Iavorschi

*Technical University of Moldova, Republic of Moldova*

An indispensable part of modern medical devices and systems is the operator interface as well as the implemented biomedical signal processing methods and techniques, and the obtaining of useful clinical information from these signals. In order to process an unpredictable signal in real time, such as the biomedical signals recorded from the human body, used algorithms and data processing methods are in a continuously developing. Nowadays, there is an increase in the number of new medical devices based on Artificial Intelligence, but until now, around 75% of these devices are intended for image processing and are implemented in the radiological field. New algorithms based on AI for biomedical signal and image processing are continuously improving so that every year more and more such medical devices are authorized. Each type of biomedical signal recorded from the human body has its characteristics and its specific approach for processing in order to extract clinical information about the activity of the cardiovascular system, nervous system, etc.

The new methods and algorithms of the developed software system, running on the personal computer, allows the implementation of the following functions: the acquisition of biomedical signals from the human body, by means of complex systems for measurement and monitoring in medicine; storing in the computer's internal memory the volume of data related to the recorded biomedical signals; real-time processing of biomedical signals and determination of the main vital parameters (heart rate, pulseoximetry, NIBP, etc.); detailed processing of signals recorded in memory; heart rate variability analysis by processing the Electrocardiography or Photoplethysmography signal; statistical analysis of signals recorded over long periods of time and the highlighting of cardiac cycles that attest to an arrhythmia or deviation from normal activity, etc.