Device R&D and upgrading in the MedTech Lab – abstract

Pósfai Gergely - MedTech Innovation and Education Center

Applying engineering solutions to assist medical treatment can enhance clinical care, save money and lives. The MedTech Innovation and Education Center provides infrastructure and collaboration space for the development of such solutions. For example, accurate and continuous monitoring and control of respiratory parameters of patients treated in the intensive care unit through respiratory support is essential in the care of critically ill patients. The application of digital twin technology offers the opportunity to create patient-specific models that can help personalize therapy and optimize treatment decisions. With the help of identifiable mathematical models, accurate estimates and predictions can be made about the condition and respiratory mechanical properties of individual patients. Properties characterized by such numerical values - and especially information obtained about changes in these properties - can be useful for clinical staff, and in the case of the use of robust and reliable algorithms, they can even replace certain automatable subtasks of the clinical staff's work, thereby improving the efficiency of patient care and the performance of hospital staff. We are engaged in the development of such and similar applications and the elaboration of their theoretical background in the MedTech lab.