Machine Learning for Classifying Risks of Death and Length of Stay of Patients in Intensive Unit Care Beds

Authors : Itamir de Morais Barroca Filho, Cephas A. S. Barreto, Ramon Malaquias, Cezar Miranda Paula de Souza, Arthur Costa Gorgônio, João C. Xavier-Júnior, Mateus Firmino, Fellipe Matheus Costa Barbosa

Abstract : Information and Communication Technologies (ICT) in healthcare are crucial for efficiently delivering medical healthcare services to patients. These ICTs are also known as e-health and comprise technologies such as electronic record systems, telemedicine systems, and personalized devices for diagnosis. The focus of e-health is to improve the quality of health information, strengthen national health systems, and ensure accessible, high-quality health care for all. All the data gathered by these technologies make it possible to help clinical staff with automated decisions using machine learning. In this context, we collected patient data, such as heart rate, oxygen saturation (SpO2), blood pressure, respiration, and others. With this data, we were able to develop machine learning models for patients' risk of death and estimate the length of stay in ICU beds. Thus, this paper presents the methodology for applying machine learning techniques to develop these models. As a result, although we implemented these models on an IoT healthcare platform, helping clinical staff in healthcare in an ICU, it is essential to create a robust clinical validation process and monitoring of the proposed models.

Keywords : ICT, e-health, machine learning, ICU, healthcare

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