

PREVENTION OF PRESSURE ULCERS USING A DEEP LEARNING APPROACH AND WEARABLE TECHNOLOGY

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One of the scenarios that emerged from the socio-demographic and healthcare projections to 2030 and 2050 on the Italian population processed by National Institute of Statistics (ISTAT) on aging and active longevity is that in 2050 the population over 65 will amount to 20 million people, of which over 4 million will be over 85 years. These data suggest a special focus on chronic diseases. One of these is the development of a disease that usually occurs in patients undergoing hospitalization, the pressure ulcers (PUs). PUs represent a direct consequence of a prolonged compression of the skin which causes a narrowing of the blood vessels, with consequent tissue necrosis; for this reason it is also called a pressure injury. Although healthcare has played an important role in the healing process of this disease for several years, all the approaches addressed so far do not guarantee high accuracy and the proposed solutions are very expensive and invasive. This study aims to present a non-invasive system that helps hospitalized patients to prevent the development of PUs and, at the same time, improves the sustainability and efficiency of health systems. The design and implementation is carried out through the use of wearable sensors and a deep learning approach that allows us to predict the major positions of bedridden patients thus helping the medical staff to attend when a patient remains in the same position for a prolonged time. We built a dataset by monitoring the positions of hospitalized patients, and we trained the proposed algorithm obtaining good levels of accuracy.

REFERENCE

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