عنوان مقاله:

A Novel Pulse-Taking Device for Persian Medicine Based on Convolutional Neural Networks

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خلاصه مقاله:

Background: In Persian medicine (PM), measuring the wrist pulse is one of the main methods for determining a person's health status and temperament. One problem that can arise is the dependence of the diagnosis on the physician's interpretation of pulse wave features. Perhaps, this is one reason why this method has yet to be combined with modern medical methods. This paper addresses this concern and outlines a system for measuring pulse signals based on PM. Methods: A system that uses data from a customized device that logs the pulse wave on the wrist was designed and clinically implemented based on PM. Seven convolutional neural networks (CNNs) have been used for classification. Results: The pulse wave features of ۳۴ participants were assessed by a specialist based on PM principles. Pulse taking was done on the wrist in the supine position (named Malmas in PM) under the supervision of the physician. Seven CNNs were implemented for each participant's pulse characteristic (pace, rate, vessel elasticity, strength, width, length, and height) assessment, and then, each participant was classified into three classes. Conclusion: It appears that the design and construction of a customized device combined with the deep learning algorithm can measure the pulse wave features according to PM and it can increase the reliability and repeatability of the diagnostic results based on PM.

کلمات کلیدی:

Convolutional neural network, Persian medicine, pulse signal, pulse taking, temperament