ARTIFICIAL INTELLIGENCE IN MEDICINE: CURRENT SITUATION AND FUTURE TRENDS

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ABSTRACT

Advances in computational power paired with massive amounts of data generated in healthcare systems make many clinical problems ripe for artificial intelligence (AI) applications. Artificial intelligence, has been successfully applied in the automation of the process of analysis of medical data, shortening the time for diagnosis, as well as ensuring high accuracy and repeatability of results. Algorithms can be applied to automatically diagnose diseases based on MRI/CT/X-ray images, predict patient survival rates more accurately, estimate treatment effects on patients using data from randomized trials and automate the task of labeling medical datasets using natural language processing. Algorithms in medicine have so far demonstrated several potential benefits to both physicians and patients. AI has found application in several fields of medicine i.e. in stratification of patients with carotid artery disease by analysing clinical and personalized data, plaque and cerebral image processing and novel biomarkers (https://taxinomisis-project.eu/), analysis of patient-specific data and development of patient-specific models for monitoring and assessment of patient condition with familiar cardiomyopathy (https://silicofcm.eu/), integration of different machine learning algorithms into one multiscale platform to investigate cancer, cardiovascular, bone disorders and tissue engineering (http://sgabu.eu/), prediction of coating thickness to increase lifespan of biomaterial susceptible to corrosion (https://www.panbiora.eu/) or even contribute to developing drug-eluting devices to combat the burden of peripheral artery disease (PAD) (https://www.decodeitn.eu/). Artificial intelligence also plays its role in development of personalized AI model for COVID-19 prediction in patients or epidemiological model for monitoring of number of people infected with COVID-19 (http://www.covidai.kg.ac.rs/).

Therefore, this mini-symposium aims to incorporate recent developments in the area of artificial medicine applied to medicine. Topics may include the application of AI in cardiology, pulmonary medicine, endocrinology, neurology, diagnosis of cancer in histopathology etc. Algorithms can be applied on medical datasets in terms of blood biomarkers, medical images, physician audio, transcribed medical records etc.