**Application of artificial intelligence methods in immunophysiology**

**Igor V. Pantic**

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**Abstract:**

Development of artificial intelligence methods is today essential for improvement of efficiency and accuracy of numerous tests and assays used in immuophysiology research. Various supervised machine learning models can be created for analysis of data obtained from microscopical and biochemical analysis of immune cells. Some of these models include relatively simple approaches based on linear regression and logistic regression, but also more complex strategies such as the use of support-vector machines, naïve Bayes, Linear discriminant analysis, decision trees, K-nearest neighbor algorithm and similarity learning. Neural networks, especially the ones based on recurrent and convolutional neural networks are especially important for development of computer vision – based algorithms in immunology. Even simple neural networks based on multilayer perceptrons can still be successfully used for detecting discrete morphological and functional changes in immune cells. Some authors suggest that in the future, supervised machine learning models and other AI-associated methods will become an integral part of many innovative research protocols in immunophysiology.

**Biography of presenting author** (should not exceed 100 words)

Prof. Igor Pantic is a currently a professor at the University of Belgrade, Faculty of medicine, Department of medical physiology. From 2013, he serves as the Head of the Laboratory for cellular physiology at the department, and is the author of numerous research articles in prestigious international scientific journals in the fields of molecular medicine, computational biology and neurosciences. From 2017, he holds the appointment of Affiliated Professor at the University of Haifa, Israel. Also from 2017, he is an external research associate at the National Science Foundation's Industry-University Cooperative Research Center, Center for advanced knowledge enablement, a consortium of Florida international, Florida Atlantic, Dubna, and Greenwich Universities, Miami, FL, USA. Current research interests of Prof. Pantic include applications of artificial intelligence methods in experimental physiology, neurosciences and biomedical engineering.

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