

The Quadriceps Muscle of Knee Joint Modelling Using Neural Network Approach: Part 2

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Abstract

Artificial neural network has been implemented in many filed, and one of the most famous estimators. Neural network has long been known for its ability to handle a complex nonlinear system without a mathematical model and has the ability to learn sophisticated nonlinear relationships provides. Theoretically, the most common algorithm to train the network is the backpropagation (BP) algorithm which is based on the minimization of the mean square error (MSE). Subsequently, this paper displays the change of quadriceps muscle model by using fake savvy strategy named backpropagation neural system nonlinear autoregressive (BPNN-NAR) model in perspective of utilitarian electrical affectation (FES). A movement of tests using FES was driven. The data that is gotten is used to develop the quadriceps muscle model. 934 planning data, 200 testing and 200 endorsement data set are used as a part of the change of muscle model. It was found that BPNN-NARMA is suitable and efficient to model this type of data. A neural network model is the best approach for modelling non-linear models such as active properties of the quadriceps muscle with one input, namely output namely muscle force.

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