

Anna Silnova
xfedor06@stud.fit.vutbr.cz
12.10.2015

Regression neural networks. Example of their application to speaker's age identification.

Artificial neural network (ANN) is an approach originally built in attempts to find mathematical representation of neural processes of the human brain. Although high accuracy in representing brain information processing is not achieved by this model, from a practical point of view, that is not necessary. Much simpler models can produce good results in practical tasks. Neural networks are frequently used in different pattern recognition and machine learning tasks, and proved to be efficient. Nowadays, they are frequently used for data classification, feature extraction and many other tasks. One of the possible variants of using neural network is application of this approach to regression problems. In my work, I'm going to present methods of using ANNs as regressors.

As an example of application regression neural network I have chosen problem of automatic speaker's age recognition. Speaker's age identification has a lot of practical applications, including commercial and forensic scenarios of usage.

The outline of my presentation is as follows. Firstly, I will shortly describe what are neural networks in general, what structure they can have and how they can be trained to solve given problem. Then, I will closely look at neural networks applied to regression task. Finally, I will introduce speaker's age identification problem and present the way it can be solved using neural network. I will present the performance of proposed approach using experimental results and compare it to performance of the other commonly used technique for age estimation.