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Knowledge Fusion in Feedforward Artificial Neural networks

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Artificial neural networks are well known computational models that have been successful in demonstrating various human cognitive capabilities. Nevertheless, as opposed to the human brain, neural networks usually require starting from the scratch to learn a new task. Furthermore, in contrast to human abilities, re-training a network on a new task will not conserve already learned information necessarily and may lead to a catastrophic forgetting. Having a well-established method for knowledge transfer between neural networks can alleviate these issues. Here in this paper, we propose a method to fuse knowledge contained in separate trained networks. The method is non-iterative and does not require initial or additional training data or training sessions. The theoretical basis of the model based on a probabilistic approach is presented and its performance for feedforward neural networks is tested on classification tasks for several publicly available data sets.

Biography

Sergey Sukhov is a Senior Researcher at Institute of Radio-Engineering and Electronics (RAS) Saratov, Russia and he has published many articles in International Journals and has Research in the area of near-field optics, optics of random media, optical micromanipulation and curremtly working on Artificial Neural Networks.