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(54) Title: APPARATUS AND METHOD FOR DISTRIBUTED NEURAL NETWORKS

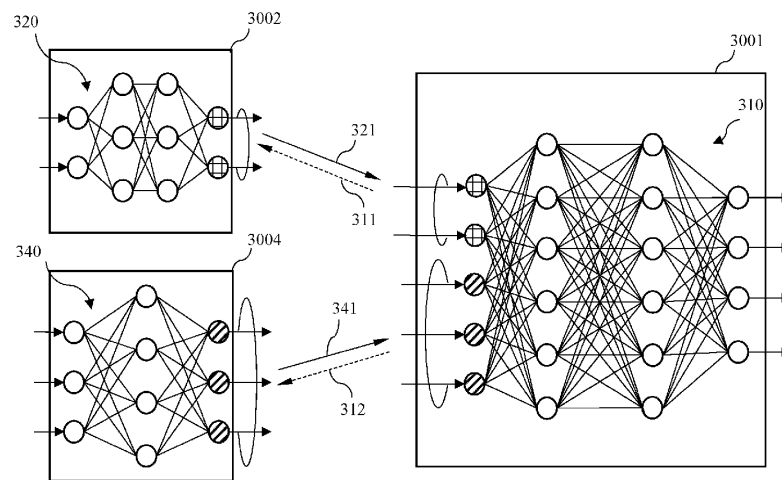


FIG. 3

(57) Abstract: The present invention relates to a first device and at least two second devices for performing distributive machine learning and inference in a communication system. Each device comprises a neural network, NN. The NNs are trained distributively in a training phase and may also be activated during the inference phase, so that an amount of data exchange may be reduced in the communication system. During the training phase and the inference phase, the at least two second devices provide activation vectors of output layers of their NNs to the first device. The first device combines those activation vectors to generate an input for its NN. During backpropagation, the first device may split or broadcast an error vector of the input layer of its NN to the at least two second devices. In this way, an arbitrary number of data sources may be handled by the communication system.

[Continued on next page]

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