

Transfer learning aims to improve the process of learning by using experience gained through the solution of a similar problem. Indeed, you can't always find a model that corresponds exactly to your data. What you have to do is map your problem to an existing similar one.

Transfer learning method is introduced after the Convolutional Neural Network due to the less accuracy rate of convolutional neural network. So, in transfer learning, a pretrained convolutional neural network's last few layers (fully connected layers) will be trimmed that is used for the classification of 1000 objects and convert it into a layer such that it will classify only few objects and then treat the rest of the convolutional neural networks as fixed feature extractor for the new dataset.

Transfer learning methods are used to improve the accuracy, but the drawback of this method is, the time for classification will be higher that compared to the convolutional neural network even though the accuracy rate is comparatively higher in

transfer learning than convolutional neural network .

Transfer learning, in contrast, allows the domains, tasks, and distributions used in training and testing to be different. In the real world, we observe many examples of transfer learning. For example, we may find that learning to recognize apples might help to recognize pears. Similarly, learning to play the electronic organ may help facilitate learning the piano. The study of Transfer learning is motivated by the fact that people can intelligently apply knowledge learned previously to solve new problems faster or with better solutions [1].

References:

[1] S. J. Pan and Q. Yang, "A Survey on Transfer Learning," in *IEEE Transactions on Knowledge and Data Engineering*, vol. 22, no. 10, pp. 1345-1359, Oct. 2010. doi: 10.1109/TKDE.2009.191