

A Feedforward neural network is a subset of a recurrent neural network

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Peter Stern wrote a short article entitled “Memory recirculation and integration” (1). We have known that a feedforward neural network is a subset of a recurrent neural network with suppressing feedback parameters. When completely eliminating the feedback signals (no feedback) by changing synaptic links, any recurrent neural network will become a feedforward neural network. Therefore, controlling the strength of synaptic links between neurons, we may keep / forget a memory where the transition of the system state indicates a sequence of episodes. It may happen that a human-made model or a mathematical model is created before discovering the model in nature. In other words, reasoning deductive conclusion becomes always true as long as all deductive rules are true.

References:

1. Peter Stern, Memory recirculation and integration, Science 12 Oct 2018: Vol. 362, Issue 6411, pp. 195