

# JARINGAN PEMBELAJARAN TIRUAN YANG DITURUNKAN DARI SISTEM SYARAF BIOLOGIS DENGAN MENGUNAKAN MODEL HOPFIELD (BAGIAN-1)

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## **Abstract**

*An artificial neural network is described that employs novel neuronal elements based on some recently revealed fundamental properties of biological neuronal networks. The dynamically stable associative learning (**Dystal**) network learns both correlations and anticorrelations by associating patterns through local interactions manifest only at the input of neuronal elements. The network can be configured to either classify or restore patterns simply by changing the number of output units. Dystal exhibits some desirable properties : performance of the network is stable with respect to network parameters over wide ranges of their values and over the size of the input fields. Neither global nor global feedback connections are required during learning. So that, the network is particularly suitable for hardware implementation. The training pattern may be noisy and need not be orthogonal. A very large number of pattern can be stored, network architecture is not restricted to multi-layer feed-forward or any other specific structure. For a known set of input patterns, the network weights can be computed a priori, in closed form, and computational effort scales linearly with the number of connections. These properties are described by Hopfield Neural Network.*

*Keywords : inhibitory, excitatory, Hopfield neural-network, adaptive associative (content addressable) memory*

## **A. PENDAHULUAN**

*Artificial Neural Network (ANN) atau Jaringan Syaraf Tiruan (JST) adalah merupakan cabang ilmu multidisiplin yang relatif masih baru. Enam puluh tahun (60 th) yang lalu, McCulloch and Pitts (1943) unsur-unsur dasar neuronal, yang saat ini lebih dikenal sebagai *artificial neural network (ANN)*. Mereka menggambarkan bahwa sebuah neuron memiliki hubungan *inhibitory* dan *excitatory* yang dibatasi oleh suatu nilai ambang tertentu (*threshold units*). Hubungan *inhibitory* memberitahukan neuron untuk tidak membangkitkan sinyal out put (*not-fire*). Sedangkan hubungan *excitatory* memberitahukan neuron untuk membangkitkan sinyal output (*fire*). Selanjutnya dikembangkan oleh Hebb (1949) serta Rosenblatt (1958) dengan teori susunan jaringan dari elemen syaraf biasanya sepenuhnya saling terhubung dan kinerja dari jaringan*