



# Supervised Learning of Neural Random-Access Machines with Differential Evolution

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# Neural Random-Access Machines

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# What is?

It is a machine introduced in [Kurach et al., 2015] based on a neural network (MLP or LSTM) which is capable of manipulating pointers and dereferencing them. Its objective is to execute a logical circuit to solve a task on which it trained.



## Memory augmented version

## Circuit example

# Artificial Neural Network

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# Multi Layer Perceptron (MLP)

# Differential Evolution

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# Differential Evolution variants

## Mutation variants

## Crossover variants

# DENN (Differential Evolution for Neural Network)



## Implementation and results

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[allowframebreaks]



Kurach, K., Andrychowicz, M., and Sutskever, I. (2015).

**Neural random-access machines.**

*CoRR*, abs/1511.06392.