Stack Operations:

- Push
- Pop
- No-operations (no-op)

t - time step

$\boldsymbol{I}^t$ - Current Input

I_k^t - k^{th} component of the input symbol at time t

$\boldsymbol{S}^t$ - Current State

S_i^t - The i^{th} State neuron at time step *t*

$\boldsymbol{S}^{t+1}$ - Next State

$\boldsymbol{R}^t$ - The stack reading at time step t

$\boldsymbol{A}^{t+1}$ - Stack action at time t + 1

Θ_i - bias term for the i^{th} neuron

g - non-linear operator (activation function)

$\{\boldsymbol{I}^1, \boldsymbol{I}^2, \ldots, \boldsymbol{I}^T\}$ - Temporal sequence of length T

"STACK1", "STACK2", etc. - the neuron arrays with the same size
"TOP" - symbol(s) on top of the stack

N_R - Number of "nonrecurrent" input neurons

N_S - Number of "hidden" recurrent neurons

N_I - Number of input neurons (each associated with a particular input symbol)

N_A - Number of "nonrecurrent" output neurons (each associated with a stack action)