

# BackPropEngine

INHERITS FROM Object  
DECLARED IN BackPropEngine.h

## CLASS DESCRIPTION

This class implements a feed-forward network that updates it's weights using the Error Back-propagation algorithm.

## INSTANCE VARIABLES

<i>Inherited from Object</i>	Class	isa;
<i>Declared in BackPropEngine</i>	id	inputs;
	id	hidden;
	id	outputs;
	float	ETA;
	float	ALPHA;

inputs	a List of the input Neurons
hidden	a List of the hidden layer Neurons
outputs	a List of the output Neurons
ETA	the learning-rate
ALPHA	the momentum-term ( <i>not used</i> )

## METHOD TYPES

Initializing a new instance	± <code>init</code> ± <code>initWithInputs:hidden:outputs:</code>
Running the algorithm	± <code>applyInput:</code> ± <code>correctWithTarget:</code>
Getting parameters	± <code>inputs</code> ± <code>hidden</code> ± <code>outputs</code>

## INSTANCE METHODS

### **applyInput:**

- **applyInput:**(double \*)*input*

Feeds the input vector pointed to by *input* forward through the BP network.

### **correctWithTarget:**

- **correctWithTarget:**(double \*)*target*

Modifies the weights of the BP network by comparing the current output to the target vector *target*. This assumes that you have used the **applyInput:** method to feed-forward an input vector.

See also: - **applyInput:**

## **hidden**

### **- hidden**

Returns a pointer to the receivers list of hidden Neurons.

## **init**

### **- init**

Initializes the receiver. This should not be called directly. Use **initWithInputs:hidden:outputs:** to initialize a new **BackPropEngine**.

See also: ± **initWithInputs:hidden:outputs:**

## **initWithInputs:hidden:outputs:**

### **- initWithInputs:(int)*Nin* hidden:(int)*Nhid* outputs:(int)*Nout***

Initializes the receiver creating a feed-forward BP network with *Nin* inputs, *Nhid* hidden nodes and *Nout* outputs.

See also: - **init**

## **inputs**

### **- inputs**

Returns a pointer to the receivers list of input Neurons.

## **outputs**

### **- outputs**

Returns a pointer to the receivers list of output Neurons.