AMORE++

pre-alpha (active development aiming to release a beta version this summer (2011))

Generated by Doxygen 1.7.4

Wed Jul 13 2011 23:19:04

Contents

Chapter 1

The AMORE++ package

1.1 Introduction

Here you will find the documentation of the C++ component of the AMORE++ R package.

The AMORE++ package is a new version of the publicly available AMORE package for neural network training and simulation under R

1.2 Motivation

Since the release of the previous version of the AMORE many things have changed in the R programming world.

The advent of the Reference Classes and of packages like Rcpp, inline and RUnit compel us to write a better version of the package in order to provide a more useful framework for neural network training and simulation.

1.3 Road Map

This project is currently very active and the development team intends to provide a beta version as soon as this summer (2011)

Chapter 2

Class Index

2.1 Class Hierarchy

This inheritance list is sorted roughly, but not completely, alphabetically:

Chapter 3

Class Index

3.1 Class List

Here are the classes, structs, unions and interfaces with brief descriptions:

Chapter 4

File Index

4.1 File List

Here is a list of all files with brief descriptions:

Chapter 5

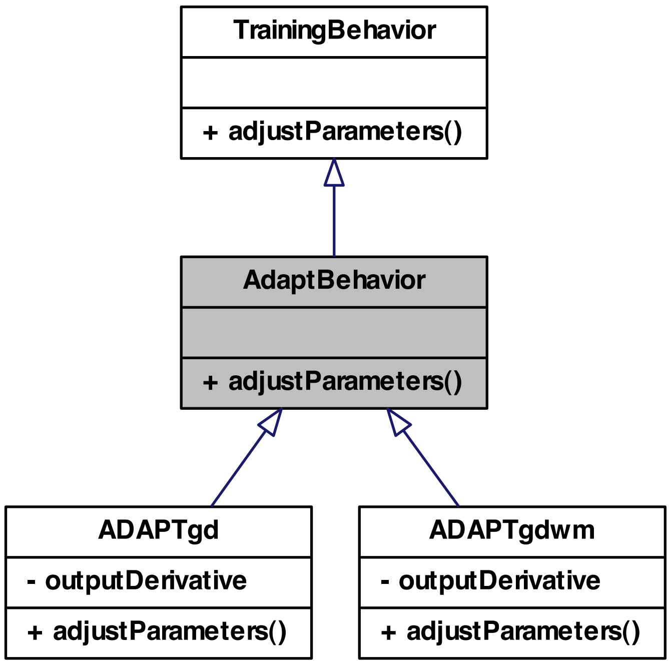
Class Documentation

5.1 AdaptBehavior Class Reference

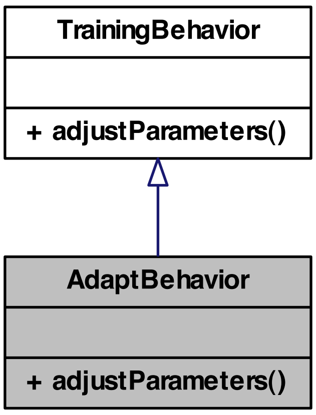
class AdaptBehavior -

```
#include <AdaptBehavior.h>
```

Inheritance diagram for AdaptBehavior:



Collaboration diagram for AdaptBehavior:



Public Member Functions

- virtual void adjustParameters ()=0

5.1.1 Detailed Description

class AdaptBehavior -

Definition at line 5 of file AdaptBehavior.h.

5.1.2 Member Function Documentation

5.1.2.1 virtual void AdaptBehavior::adjustParameters ( ) `[pure virtual]`

Reimplemented from TrainingBehavior.

Implemented in ADAPTgd, and ADAPTgdwm.

The documentation for this class was generated from the following file:

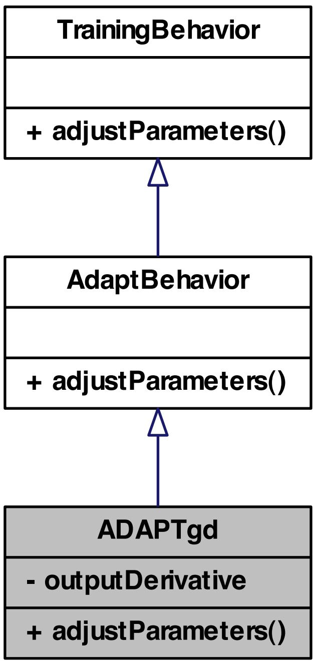
- pkg/AMORE/src/dia/AdaptBehavior.h

5.2 ADAPTgd Class Reference

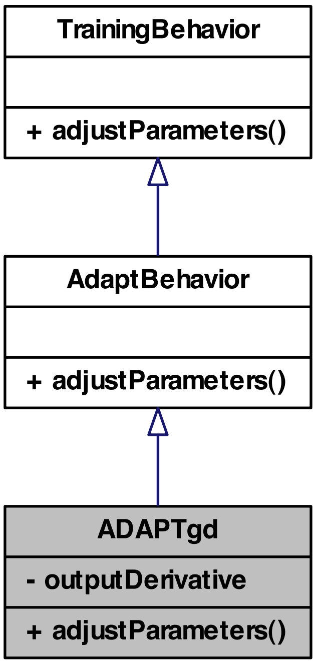
class ADAPTgd -

`#include <ADAPTgd.h>`

Inheritance diagram for ADAPTgd:



Collaboration diagram for ADAPTgd:



Public Member Functions

- void adjustParameters ()

Private Attributes

- double outputDerivative

5.2.1 Detailed Description

class ADAPTgd -

Definition at line 5 of file ADAPTgd.h.

5.2.2 Member Function Documentation

5.2.2.1 void ADAPTgd::adjustParameters ( ) [virtual]

Implements AdaptBehavior.

5.2.3 Member Data Documentation

5.2.3.1 double ADAPTgd::outputDerivative [private]

Definition at line 8 of file ADAPTgd.h.

The documentation for this class was generated from the following file:

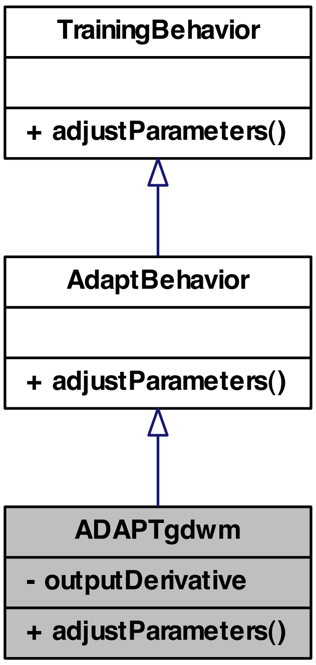
- pkg/AMORE/src/dia/ADAPTgd.h

5.3 ADAPTgdwm Class Reference

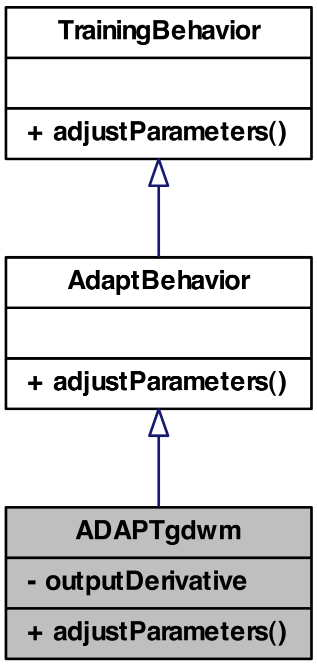
class ADAPTgdwm -

```
#include <ADAPTgdwm.h>
```

Inheritance diagram for ADAPTgdwm:



Collaboration diagram for ADAPTgdwm:



Public Member Functions

- void adjustParameters ()

Private Attributes

- double outputDerivative

5.3.1 Detailed Description

class ADAPTgdwm -

Definition at line 5 of file ADAPTgdwm.h.

5.3.2 Member Function Documentation

5.3.2.1 void ADAPTgdwm::adjustParameters ( ) [virtual]

Implements AdaptBehavior.

5.3.3 Member Data Documentation

5.3.3.1 double **ADAPTgdwm::outputDerivative** [private]

Definition at line 8 of file ADAPTgdwm.h.

The documentation for this class was generated from the following file:

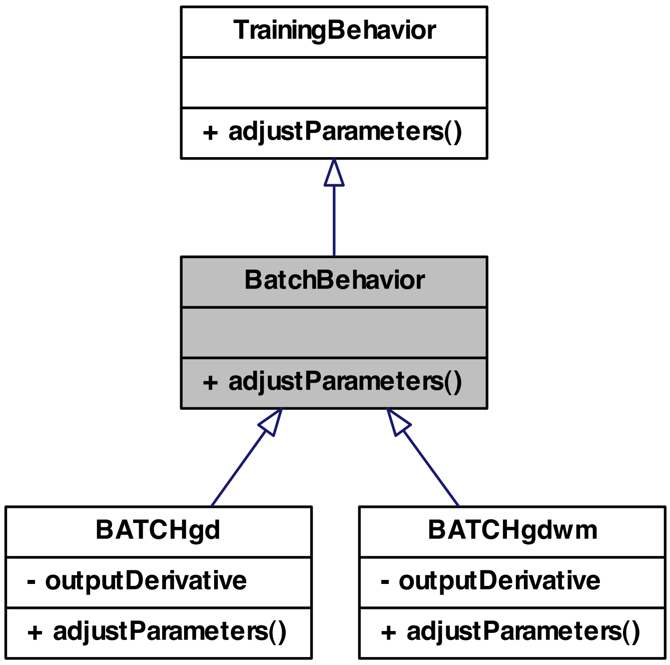
- pkg/AMORE/src/dia/ADAPTgdwm.h

5.4 BatchBehavior Class Reference

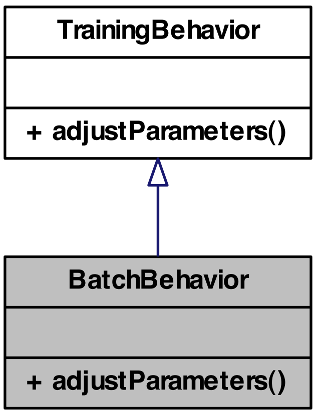
class BatchBehavior -

`#include <BatchBehavior.h>`

Inheritance diagram for BatchBehavior:



Collaboration diagram for BatchBehavior:



Public Member Functions

- virtual void adjustParameters ()=0

5.4.1 Detailed Description

class BatchBehavior -

Definition at line 5 of file BatchBehavior.h.

5.4.2 Member Function Documentation

5.4.2.1 virtual void BatchBehavior::adjustParameters ( ) [pure virtual]

Reimplemented from TrainingBehavior.

Implemented in BATCHgd, and BATCHgdwm.

The documentation for this class was generated from the following file:

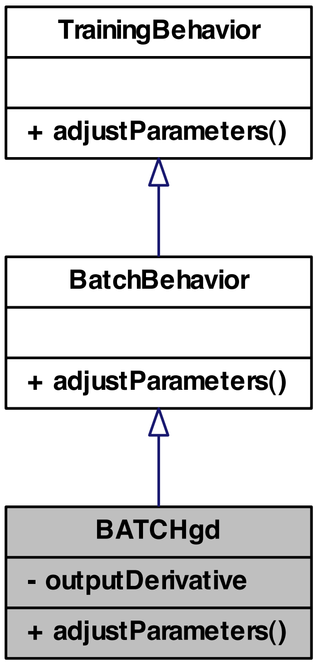
- pkg/AMORE/src/dia/BatchBehavior.h

5.5 BATCHgd Class Reference

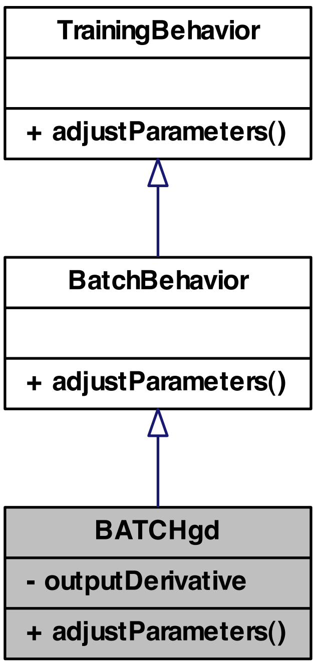
class BATCHgd -

`#include <BATCHgd.h>`

Inheritance diagram for BATCHgd:



Collaboration diagram for BATCHgd:



Public Member Functions

- void adjustParameters ()

Private Attributes

- double outputDerivative

5.5.1 Detailed Description

class BATCHgd -

Definition at line 5 of file BATCHgd.h.

5.5.2 Member Function Documentation

5.5.2.1 void BATCHgd::adjustParameters ( ) [virtual]

Implements BatchBehavior.

5.5.3 Member Data Documentation

5.5.3.1 double BATCHgd::outputDerivative [private]

Definition at line 8 of file BATCHgd.h.

The documentation for this class was generated from the following file:

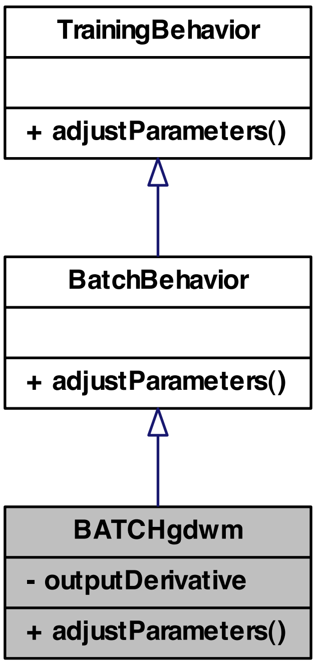
- pkg/AMORE/src/dia/BATCHgd.h

5.6 BATCHgdwm Class Reference

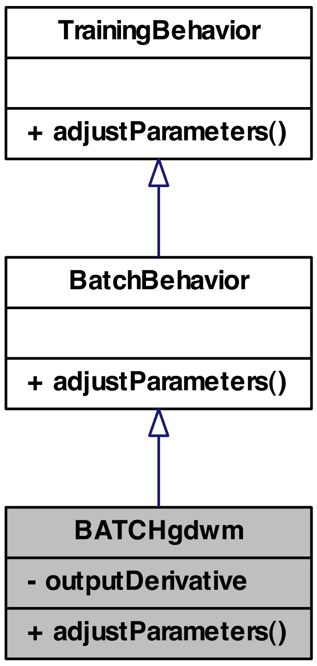
class BATCHgdwm -

`#include <BATCHgdwm.h>`

Inheritance diagram for BATCHgdwm:



Collaboration diagram for BATCHgdwm:



Public Member Functions

- void adjustParameters ()

Private Attributes

- double outputDerivative

5.6.1 Detailed Description

class BATCHgdwm -

Definition at line 5 of file BATCHgdwm.h.

5.6.2 Member Function Documentation

5.6.2.1 void BATCHgdwm::adjustParameters ( ) [virtual]

Implements BatchBehavior.

5.6.3 Member Data Documentation

5.6.3.1 double **BATCHgdwm::outputDerivative** [private]

Definition at line 8 of file BATCHgdwm.h.

The documentation for this class was generated from the following file:

- pkg/AMORE/src/dia/BATCHgdwm.h

5.7 CompareId Struct Reference

Public Member Functions

- bool operator() (const ConPtr a, const ConPtr b)
- bool operator() (const ConPtr a, const int b)
- bool operator() (const int a, const ConPtr b)
- bool operator() (const int a, const int b)

5.7.1 Detailed Description

Definition at line 352 of file ConContainer.cpp.

5.7.2 Member Function Documentation

5.7.2.1 bool CompareId::operator() (const **ConPtr** *a*, const **ConPtr** *b*) [inline]

Definition at line 356 of file ConContainer.cpp.

```
{
  return a->getId() < b->getId();
}
```

5.7.2.2 bool CompareId::operator() (const int *a*, const int *b*) [inline]

Definition at line 377 of file ConContainer.cpp.

```
{
  return a < b;
}
```

5.7.2.3 bool CompareId::operator() (const int *a*, const ConPtr *b*) `[inline]`

Definition at line 370 of file ConContainer.cpp.

```
{
  return a < b->getId();
}
```

5.7.2.4 bool CompareId::operator() (const ConPtr *a*, const int *b*) `[inline]`

Definition at line 363 of file ConContainer.cpp.

```
{
  return a->getId() < b;
}
```

The documentation for this struct was generated from the following file:

- pkg/AMORE/src/old/ConContainer.cpp

5.8 Con Class Reference

class Con -

`#include <Con.h>`

Public Member Functions

- Con ()

  Default Constructor.
- Con (Neuron &neuron)

  Constructor.
- Con (Neuron &neuron, double weight)

  Constructor.
- Handler Id ()

  A getter of the Id of the Neuron pointed by the from field.
- Neuron & getNeuron ()

  from field accessor.
- void setNeuron (Neuron &neuron)
- double getWeight ()

  weight field accessor.
- void setWeight (double weight)

  weight field accessor.
- void show ()

Pretty print of the Con information.

- bool validate ()

  Object validator.

- Con ()
- Con (NeuronPtr neuronPtr)

  Constructor.

- Con (NeuronPtr neuronPtr, double value)

  Constructor.

- ∼Con ()

  Default Destructor.

- NeuronPtr getFrom ()

  from field accessor.

- void setFrom (NeuronPtr neuronPtr)

  from field accessor.

- int getId ()

  A getter of the Id of the Neuron pointed by the from field.

- double getWeight ()
- void setWeight (double value)
- bool show ()
- bool validate ()

Private Attributes

- NeuronRef d_neuron
- double d_weight
- NeuronWeakPtr from

  A smart pointer to the Neuron used as input during simulation or training.

- double weight

  A double variable that contains the weight of the connection.

5.8.1 Detailed Description

class Con -

A class to handle the information needed to describe an input connection.

The Con class provides a simple class for a connection described by a pair of values: a pointer to a Neuron object used as the from field and the weight used to propagate the value of that Neuron object.

Definition at line 3 of file Con.h.

5.8.2 Constructor & Destructor Documentation

5.8.2.1 Con::Con ( )

Default Constructor.

Definition at line 17 of file Con.cpp.

```
         :
  weight(0), from()
{
}
```

5.8.2.2 Con::Con (Neuron & *neuron*)

Constructor.

Definition at line 17 of file Con.cpp.

```
                        :
  d_neuron( boost::ref(neuron) ), d_weight(0)
{
}
```

5.8.2.3 Con::Con (Neuron & *neuron,* double *weight*)

Constructor.

Definition at line 28 of file Con.cpp.

```
                                  :
  d_neuron(boost::ref(neuron)), d_weight(weight)
{
}
```

5.8.2.4 Con::Con ( )

5.8.2.5 Con::Con (NeuronPtr *neuronPtr*)

Constructor.

Definition at line 40 of file Con.cpp.

```
                           :
  from(neuronPtr), weight(0)
{
}
```

5.8.2.6 Con::Con (NeuronPtr *neuronPtr,* double *value*)

Constructor.

Definition at line 29 of file Con.cpp.

```
                                              :
  from(neuronPtr), weight(value)
{
}
```

5.8.2.7 Con::∼Con ( )

Default Destructor.

Definition at line 46 of file Con.cpp.

```
{
}
```

5.8.3 Member Function Documentation

5.8.3.1 NeuronPtr Con::getFrom ( )

from field accessor.

This method allows access to the address stored in the private from field (a pointer to a Neuron object).∗

Returns

A pointer to the Neuron object referred to by the from field.

```
        //================
        //Usage example:
        //================
        // Data set up
                        NeuronPtr ptShNeuron ( new Neuron(1) );         // Neuron
       Id is set 1
                        ConPtr ptShCon( new Con(ptShNeuron) );          // from p
      oints to ptShNeuron and weight is set to 0
        // Test
                        ptShNeuron = ptShCon->getFrom() ;
                        int result = ptShNeuron->getId();

        // Now, result is equal to 1.
```

See also

getId and the unit test files, e.g., runit.Cpp.Con.R, for further examples.

Definition at line 71 of file Con.cpp.

References from.

```
{
  return (from.lock());
}
```

5.8.3.2 int Con::getId ( )

A getter of the Id of the Neuron pointed by the from field.

This method gets the Id of the Neuron referred to by the from field

Returns

The value of the Id (an integer).

```
        //================
        //Usage example:
        //================
        // Data set up
                        NeuronPtr ptShNeuron ( new Neuron(16) );        // Neuron
       Id is set to 16
                        ConPtr ptShCon( new Con(ptShNeuron) );          // from p
      oints to ptShNeuron and weight is set to 0
        // Test
                        int result = ptShCon->getId();

        // Now, result is equal to 16.
```

See also

getFrom, setFrom and the unit test files, e.g., runit.Cpp.Con.R, for further examples.

Definition at line 123 of file Con.cpp.

References from.

```
{
  if (from.use_count() > 0)
    {
      NeuronPtr neuronPtr(from);
      return (neuronPtr->getId());
    }
  else
    {
      return (NA_INTEGER);
    }
}
```

5.8.3.3 Neuron & Con::getNeuron ( )

from field accessor.

This method allows access to the address stored in the private from field (a pointer to a Neuron object).*

Returns

A pointer to the Neuron object referred to by the from field.

```
        //================
        //Usage example:
        //================
        // Data set up
                        NeuronPtr ptShNeuron ( new Neuron(1) );         // Neuron
       Id is set 1
                        ConPtr ptShCon( new Con(ptShNeuron) );          // from p
      oints to ptShNeuron and weight is set to 0
        // Test
                        ptShNeuron = ptShCon->getFrom() ;
                        int result = ptShNeuron->getId();

        // Now, result is equal to 1.
```

See also

getId and the unit test files, e.g., runit.Cpp.Con.R, for further examples.

Definition at line 54 of file Con.cpp.

References d_neuron.

```
{
  return d_neuron;
}
```

5.8.3.4 double Con::getWeight ( )

weight field accessor.

This method allows access to the value stored in the private field weight

Returns

The value of weight (double)

```
  //================
  //Usage example:
  //================
  // Data set up
                        std::vector<double> result;
                        NeuronPtr ptShNeuron ( new Neuron(16) );                /
      / Neuron Id is set to 16
                        ConPtr ptShCon( new Con(ptShNeuron, 12.4) );  // from poi
      nts to ptShNeuron and weight is set to 12.4
        // Test
                        result.push_back( ptShCon->getWeight() );
                        ptShCon->setWeight(2.2);
                        result.push_back( ptShCon->getWeight() );

        // Now, result is a numeric vector that contains the values 12.4 and 2.2
      .
```

See also

setWeight and the unit test files, e.g., runit.Cpp.Con.R, for further examples.

Definition at line 114 of file Con.cpp.

References d_weight.

```
{
  return d_weight;
}
```

5.8.3.5 double Con::getWeight ( )

5.8.3.6 int Con::Id ( )

A getter of the Id of the Neuron pointed by the from field.

This method gets the Id of the Neuron referred to by the from field

Returns

The value of the Id (an integer).

```
//================
//Usage example:
//================
// Data set up
                NeuronPtr ptShNeuron ( new Neuron(16) );        // Neuron I
d is set to 16
                ConPtr ptShCon( new Con(ptShNeuron) );          // from poi
nts to ptShNeuron and weight is set to 0
// Test
                int result = ptShCon->getId();

// Now, result is equal to 16.
```

See also

getFrom, setFrom and the unit test files, e.g., runit.Cpp.Con.R, for further examples.

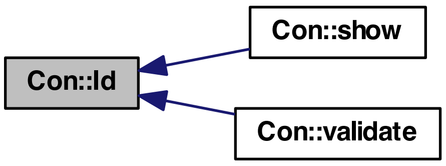
Definition at line 86 of file Con.cpp.

References d_neuron.

Referenced by show(), and validate().

```
{
  return d_neuron.get().Id();
}
```

Here is the caller graph for this function:



5.8.3.7 void Con::setFrom (NeuronPtr *neuronPtr*)

from field accessor.

This method sets the value of the from field with the address used as parameter.

Parameters

f	A pointer to the neuron that is to be inserted in the from field.

```
        //================
        //Usage example:
        //================
        // Data set up
                        NeuronPtr ptShNeuron ( new Neuron(1) );         // Neuron
       Id is set to 1
                        ConPtr ptShCon( new Con() );
                        ptShCon->setFrom( ptShNeuron );
        // Test
                        ptShNeuron = ptShCon->getFrom() ;
                        int result = ptShNeuron->getId();

        // Now, result is equal to 1
```

See also

getFrom and getId contain usage examples. For further examples see the unit test files, e.g., runit.Cpp.Con.R

Definition at line 98 of file Con.cpp.

References from.

```
{
  from = neuronPtr;
}
```

5.8.3.8 void Con::setNeuron (Neuron & *neuron*)

Definition at line 61 of file Con.cpp.

References d_neuron.

```
{
  d_neuron=boost::ref(neuron);
}
```

5.8.3.9 void Con::setWeight (double *value*)

weight field accessor.

This method sets the value of the weight field.

Parameters

w	The new value (double) to be set in the weight field.

```
  //================
  //Usage example:
  //================
  // Data set up
                      std::vector<double> result;
                      NeuronPtr ptShNeuron ( new Neuron(16) );                /
      / Neuron Id is set to 16
                      ConPtr ptShCon( new Con(ptShNeuron, 12.4) );  // from poi
      nts to ptShNeuron and weight is set to 12.4
                      result.push_back(ptShCon->getWeight());
        // Test
                      ptShCon->setWeight(2.2);
                      result.push_back(ptShCon->getWeight());

        // Now, result is a numeric vector that contains the values 12.4 and 2.2
      .
```

See also

getWeight and the unit test files (e.g. runit.Cpp.Con.R)

Definition at line 121 of file Con.cpp.

References d_weight, and weight.

```
{
  d_weight=weight;
}
```

5.8.3.10 void Con::setWeight (double *value*)

5.8.3.11 bool Con::show ( )

Pretty print of the Con information.

This method outputs in the R terminal the contents of the Con fields.

Returns

true in case everything works without throwing an exception

See also

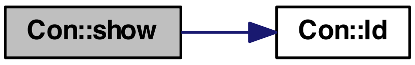
setWeight and the unit test files, e.g., runit.Cpp.Con.R, for usage examples.

Definition at line 133 of file Con.cpp.

References d_weight, and Id().

```
{
  int id = Id();
  if (id == NA_INTEGER)
    {
      Rprintf("From: NA\t Invalid Connection \n");
    }
  else
    {
      Rprintf("From:\t %d \t Weight= \t %lf \n", id, d_weight);
    }
}
```

Here is the call graph for this function:



5.8.3.12 bool Con::show ( )

5.8.3.13 bool Con::validate ( )

Object validator.

This method checks the object for internal coherence. A try / catch mechanism exits normal execution and returns control to the R terminal in case the contents of the Con object are identified as corrupted.

Returns

true in case the checks are Ok.

Exceptions

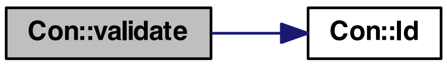
An	std::range error if weight or from are not finite.

Definition at line 153 of file Con.cpp.

References Id(), and weight.

```
{
  BEGIN_RCPP
  if (! R_FINITE(weight()) ) throw std::range_error("weight is not finite.");
  if (Id() == NA_INTEGER)
    throw std::range_error("fromId is not finite.");
  return (true);
END_RCPP}
```

Here is the call graph for this function:



5.8.3.14 bool Con::validate ( )

5.8.4 Member Data Documentation

5.8.4.1 NeuronRef Con::d_neuron [private]

Definition at line 6 of file Con.h.

Referenced by getNeuron(), Id(), and setNeuron().

5.8.4.2 double Con::d_weight [private]

Definition at line 7 of file Con.h.

Referenced by getWeight(), setWeight(), and show().

5.8.4.3 NeuronWeakPtr Con::from [private]

A smart pointer to the Neuron used as input during simulation or training.

The from field contains the address of the Neuron whose output will be used as input by the Neuron containing the Con object.

Definition at line 22 of file Con.h.

Referenced by getFrom(), getId(), and setFrom().

5.8.4.4 double Con::weight [private]

A double variable that contains the weight of the connection.

The weight field contains the factor by which the output value of the Neuron addressed by the from field is multiplied during simulation or training.

Definition at line 27 of file Con.h.

Referenced by setWeight(), and validate().

The documentation for this class was generated from the following files:

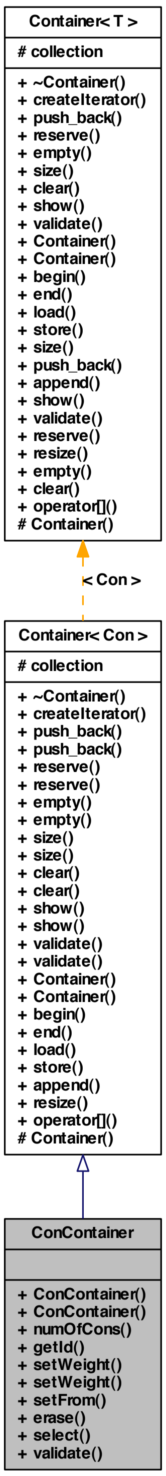
- pkg/AMORE/src/dia/Con.h
- pkg/AMORE/src/old/Con.h
- pkg/AMORE/src/Con.cpp
- pkg/AMORE/src/old/Con.cpp

5.9 ConContainer Class Reference

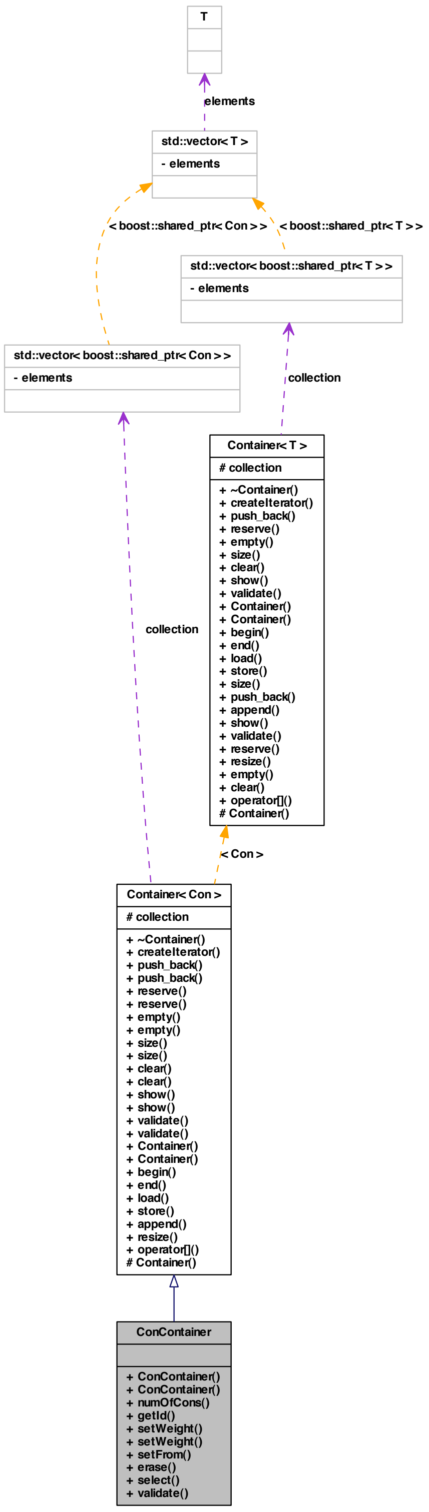
A vector of connections.

```
#include <ConContainer.h>
```

Inheritance diagram for ConContainer:



Collaboration diagram for ConContainer:



Public Types

- typedef std::vector< boost::shared_ptr< Con > >::iterator iterator
- typedef std::vector< boost::shared_ptr< Con > >::const_iterator const_iterator
- typedef boost::shared_ptr< Con > value_type
- typedef value_type const & const_reference

Public Member Functions

- ConContainer ()
- ConContainer (std::vector< ConPtr > collection)
- int numOfCons ()

  Size of the ConContainer object.
- std::vector< int > getId ()

  Getter of the Id values of the vector of Cons.
- bool setWeight (std::vector< double > nWeights)

  Setter of the weight field of the Con objects related to ConContainer.
- bool setWeight (std::vector< double > nWeights, std::vector< int > nIds)

  Setter of the weights of the specified elements from the ConContainer object.
- bool setFrom (NeuronContainer neuronContainer)

  Setter of the from fields of the Con objects related to ConContainer.
- void erase (std::vector< int > nIds)

  Erase the specified elements from the vecCom object.
- ConContainerPtr select (std::vector< int > nIds)

  Selects the specified elements from the vecCom object.
- bool validate ()

  Object validator.

5.9.1 Detailed Description

A vector of connections.

The ConContainer class provides a simple class for a vector of connections. It's named after the R equivalent Reference Class.

Definition at line 16 of file ConContainer.h.

5.9.2 Member Typedef Documentation

5.9.2.1 typedef std::vector<boost::shared_ptr<Con> >::const_iterator ConContainer::const_iterator

Reimplemented from Container< Con >.

Definition at line 23 of file ConContainer.h.

5.9.2.2 typedef value_type const& ConContainer::const_reference

Reimplemented from Container< Con >.

Definition at line 27 of file ConContainer.h.

5.9.2.3 typedef std::vector<boost::shared_ptr<Con> >::iterator ConContainer::iterator

Reimplemented from Container< Con >.

Definition at line 21 of file ConContainer.h.

5.9.2.4 typedef boost::shared_ptr<Con> ConContainer::value_type

Reimplemented from Container< Con >.

Definition at line 25 of file ConContainer.h.

5.9.3 Constructor & Destructor Documentation

5.9.3.1 ConContainer::ConContainer ( )

Definition at line 8 of file ConContainer.cpp.

```
{
}
```

5.9.3.2 ConContainer::ConContainer (std::vector< ConPtr > *collection*)

Definition at line 12 of file ConContainer.cpp.

```
                                                             :
  Container<Con> (collection) // Call to Base constructor
{
}
```

5.9.4 Member Function Documentation

5.9.4.1 void ConContainer::erase (std::vector< int > *nIds*)

Erase the specified elements from the vecCom object.

Provides a convenient way of removing some Con objects from the collection field of the ConContainer object.

Parameters

vFrom	An std::vector<int> with the Ids of the connections to remove.

```
        //================
        //Usage example:
        //================

        // Data set up
                        std::vector<int> result;
                        std::vector<NeuronPtr> neuronContainer;
                        ConContainerPtr conContainerPtr( new ConContainer() );
                        ConContainerPtr vErased;
                        ConPtr  ptC;
                        NeuronPtr ptN;
                        int ids[]= {11, 10, 9, 3, 4, 5, 6, 7, 8, 2, 1};
                        std::vector<double> nWeights;
                        nWeights.push_back(11.32);
                        nWeights.push_back(1.26);
                        nWeights.push_back(2.14);
                        nWeights.push_back(3.16);
                        nWeights.push_back(4.14);
                        nWeights.push_back(5.19);
                        nWeights.push_back(6.18);
                        nWeights.push_back(7.16);
                        nWeights.push_back(8.14);
                        nWeights.push_back(9.12);
                        nWeights.push_back(10.31);

                        for (int i=0; i<nWeights.size() ; i++) {
      / Let's create a vector with three neurons
                                ptN.reset( new Neuron( ids[i] ) );
                                neuronContainer.push_back(ptN);
                        }
                        conContainerPtr->buildAndAppend(neuronContainer, nWeights
      );

                        // Test

                        std::vector<int> toRemove;
                        toRemove.push_back(1);
                        toRemove.push_back(3);
                        toRemove.push_back(5);
                        toRemove.push_back(7);

                        conContainerPtr->erase(toRemove);
                        conContainerPtr->show();
                        result=conContainerPtr->getId();

                // The output at the R terminal would display :
                //
                // From:         2       Weight=         9.120000
                // From:         4       Weight=         4.140000
                // From:         6       Weight=         6.180000
                // From:         8       Weight=         8.140000
                // From:         9       Weight=         2.140000
                // From:         10  Weight=     1.260000
                // From:         11  Weight=     11.320000
```

See also

select and the unit test files, e.g. runit.Cpp.ConContainer.R, for further examples.

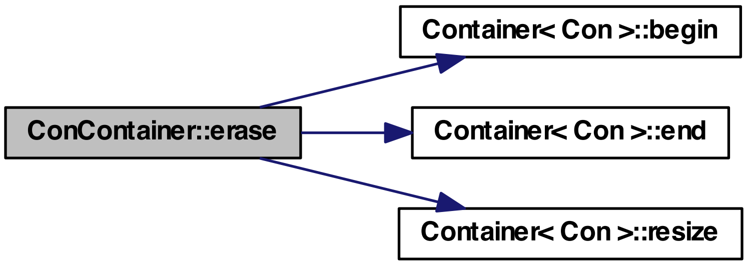
Definition at line 450 of file ConContainer.cpp.

References Container< Con >::begin(), Container< Con >::end(), and Container<

Con >::resize().

```
{
  std::vector<ConPtr>::iterator itr;
  sort(begin(), end(), CompareId());
  sort(nIds.begin(), nIds.end());
  itr = set_difference(begin(), end(), nIds.begin(), nIds.end(), begin(),
      CompareId());
  resize(itr - begin());
}
```

Here is the call graph for this function:



5.9.4.2 std::vector< int > ConContainer::getId ( )

Getter of the Id values of the vector of Cons.

This function returns the Id's of the neurons referred to by the vector of Cons.

Returns

An std::vector<int> that contains the Ids

```
  //================
  //Usage example:
  //================
        // Data set up
                        Neuron N1, N2, N3;
                        ConContainer conContainer;
                        std::vector<int> result;

                        N1.setId(10);
                        N2.setId(20);
                        N3.setId(30);

                        ConPtr ptCon( new Con(&N1, 1.13) );     // Create new Con
```

```
 and initialize ptCon
                  conContainer.push_back(ptCon);                     /
/ push_back
                  ptCon.reset(  new Con(&N2, 2.22) );             // create
 new Con and assign to ptCon
                  conContainer.push_back(ptCon);                     /
/ push_back
                  ptCon.reset(  new Con(&N3, 3.33) );             // create
 new Con and assign to ptCon
                  conContainer.push_back(ptCon);                     /
/ push_back

  // Test
                  conContainer.show() ;
                  conContainer.validate();
                  result=conContainer.getId();

  // Now result is a vector that contains the values 10, 20 and 30.
```

See also

getWeight and the unit test files, e.g. runit.Cpp.ConContainer.R, for further examples.

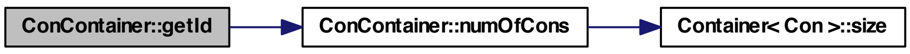
Definition at line 93 of file ConContainer.cpp.

References numOfCons().

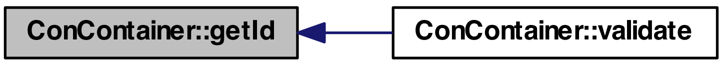
Referenced by validate().

```
{
  std::vector<int> result;
  result.reserve(numOfCons());
  foreach (ConPtr itr, *this)
    {
      result.push_back(itr->getId());
    }
  return result;
}
```

Here is the call graph for this function:



Here is the caller graph for this function:



5.9.4.3 int ConContainer::numOfCons ( )

Size of the ConContainer object.

This function returns the size of the ConContainer object, that is to say, the number of Con objects it contains.

Returns

The size of the vector

```
//================
//Usage example:
//================
      // Data set up
                                std::vector<int> result;
                                std::vector<ConPtr> vcA, vcB;
                                ContainerNeuronPtr      neuronContainerPtr( new
    Container<Neuron>() );
                                ConContainerPtr conContainerPtr( new
    ConContainer() );
                                ConPtr  ptC;
                                NeuronPtr ptN;
                                int ids[]= {10, 20, 30};
                                double weights[] = {1.13, 2.22, 3.33 };
                                for (int i=0; i<=2 ; i++) {                        /
    / Let's create a vector with three neurons
                                        ptN.reset( new Neuron( ids[i] ) );
                                        neuronContainerPtr->push_back(ptN);
                                }
      // Test
                                for (int i=0; i<=2 ; i++) {                        /
    / and a vector with three connections
                                        result.push_back(conContainerPtr->numOfCo
    ns());          // Append numOfCons to result, create new Con and push_back into
    conContainer
                                        ptC.reset( new Con( neuronContainerPtr->l
    oad().at(i), weights[i]) );

                                        conContainerPtr->push_back(ptC);
                                }

      // Now, result contains a numeric vector with values 0, 1, 2, and 3.
```

See also

Container::size (alias)

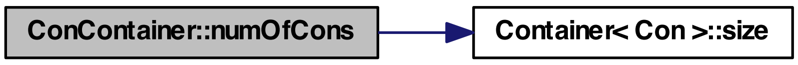
Definition at line 52 of file ConContainer.cpp.

References Container< Con >::size().

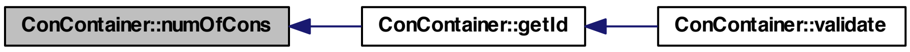
Referenced by getId().

```
{
  return size();
}
```

Here is the call graph for this function:



Here is the caller graph for this function:



5.9.4.4 ConContainerPtr ConContainer::select (std::vector< int > *nIds*)

Selects the specified elements from the vecCom object.

Provides a convenient way of selecting some Con objects from the collection field of the ConContainer object.

Parameters

vFrom	An std::vector<int> with the Ids of the connections to select.

```
        //================
        //Usage example:
```

```
        //================

        // Data set up
                std::vector<int> result;
                std::vector<NeuronPtr> neuronContainer;
                ConContainerPtr conContainerPtr( new ConContainer() );
                ConPtr  ptC;
                NeuronPtr ptN;
                int ids[]= {11, 10, 9, 3, 4, 5, 6, 7, 8, 2, 1};
                double weights[]={11.32, 1.26, 2.14, 3.16, 4.14, 5.19, 6.18, 7.16
      , 8.14, 9.12, 10.31};
                std::vector<double> nWeights;
                for (int i=0; i<11; i++) {
                        nWeights.push_back(weights[i]);
                }
                for (int i=0; i<nWeights.size() ; i++) {                               /
      / Let's create a vector with three neurons
                        ptN.reset( new Neuron( ids[i] ) );
                        neuronContainer.push_back(ptN);
                }
                conContainerPtr->buildAndAppend(neuronContainer, nWeights);
                // Test
                std::vector<int> toSelect;
                toSelect.push_back(1);
                toSelect.push_back(3);
                toSelect.push_back(5);
                toSelect.push_back(7);

                ConContainerPtr  vSelect (  conContainerPtr->select(toSelect)  );

                result=vSelect->getId();

                // Now, result is a numeric vector with the values 1, 3, 5 and 7.
```

See also

erase and the unit test files, e.g. runit.Cpp.ConContainer.R, for further examples.

Definition at line 505 of file ConContainer.cpp.

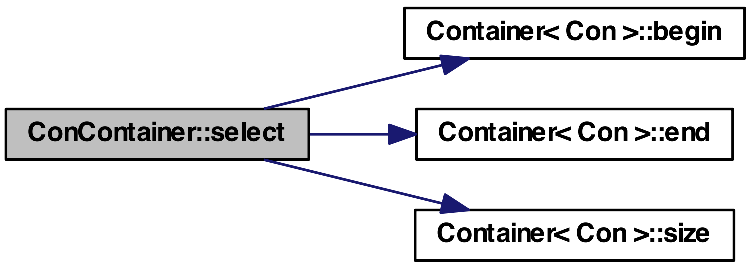
References Container< Con >::begin(), Container< Con >::end(), and Container< Con >::size().

Referenced by setWeight().

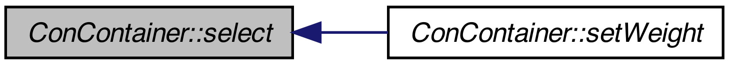
```
{
  ConContainerPtr result(new ConContainer);
  result->reserve(size());
  sort(begin(), end(), CompareId());
  sort(nIds.begin(), nIds.end());
  set_intersection(begin(), end(), nIds.begin(), nIds.end(),
      std::back_inserter(*result), CompareId());

  return result;
}
```

Here is the call graph for this function:



Here is the caller graph for this function:



5.9.4.5 bool ConContainer::setFrom (NeuronContainer *neuronContainer*)

Setter of the from fields of the Con objects related to ConContainer.

This function provides a convenient way of getting the values of the weight field of those Con object pointed to by the smart pointer stored in the ConContainer object.

Parameters

vFrom	An std::vector<NeuronPtr> with the pointers to be set in the from fields of the ConContainer object.

Returns

true if not exception is thrown

```
//================
//Usage example:
        //================

        // Data set up
                std::vector<int> result;
                ContainerNeuronPtr      neuronContainerPtr( new
      Container<Neuron>() );
                ConContainerPtr conContainerPtr( new ConContainer() );
                ConPtr  ptC;
                NeuronPtr ptN;

                int ids[]= {10, 20, 30};
                double weights[] = {1.13, 2.22, 3.33 };

                for (int i=0; i<=2 ; i++) {                             // Let's
      create a vector with three neurons
                        ptN.reset( new Neuron( ids[i] ) );
                        neuronContainerPtr->push_back(ptN);
                }
                for (int i=0; i<=2 ; i++) {                             // and a
      vector with three connections
                        ptC.reset( new Con() );
                        conContainerPtr->push_back(ptC);
                }
        // Test
                conContainerPtr->setFrom(neuronContainerPtr->load()) ;
                conContainerPtr->show();
                result=conContainerPtr->getId();

        // Now result is a vector that contains the values 10, 20 and 30.
```

See also

getFrom and the unit test files, e.g. runit.Cpp.ConContainer.R, for further examples.

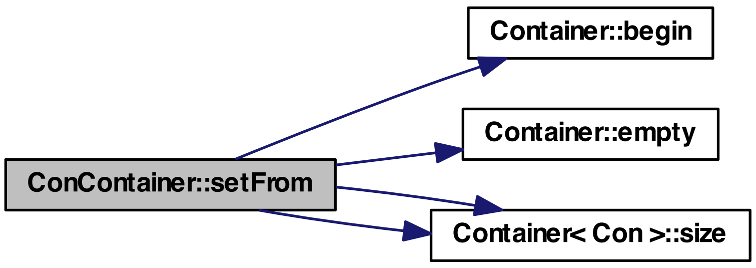
Definition at line 333 of file ConContainer.cpp.

References Container< T >::begin(), Container< T >::empty(), Container< Con >::size(), and Container< T >::size().

```
{
  BEGIN_RCPP
  if (neuronContainer.empty())
    { throw std::range_error("[ C++ ConContainer::setFrom]: Error, w is empty");}

  if (neuronContainer.size() != size())
    {
      throw std::range_error(
          "[C++ ConContainer::setFrom]: Error, neuronContainer.size() != collecti
      on.size()");
    }
  std::vector<NeuronPtr>::iterator itrNeuron = neuronContainer.begin();
  foreach(ConPtr itr , *this)
    {
      itr->setFrom( *itrNeuron );
      itrNeuron++;
    }
  return true;
END_RCPP}
```

Here is the call graph for this function:



5.9.4.6 bool ConContainer::setWeight (std::vector< double > *nWeights*, std::vector< int > *nIds*)

Setter of the weights of the specified elements from the ConContainer object.

Provides a convenient way of setting the weights of some Con objects from the collection field of the ConContainer object.

Parameters

nWeights	A numeric (double) vector with the weights to be set in the Con objects contained in the ConContainer object.
vFrom	An std::vector<int> with the Ids of the connections to select

Returns

true in case no exception is thrown

```
        //================
        //Usage example:
        //================

        // Data set up
                std::vector<double> result;
                        std::vector<NeuronPtr> neuronContainer;
                        ConContainerPtr conContainerPtr( new ConContainer() );
                        ConPtr  ptC;
                        NeuronPtr ptN;
                        int ids[]= {11, 10, 9, 3, 4, 5, 6, 7, 8, 2, 1};
                        double weights[]={11.32, 1.26, 2.14, 3.16, 4.14, 5.19, 6.
      18, 7.16, 8.14, 9.12, 10.31};
                        std::vector<double> nWeights;
                        for (int i=0; i<11; i++) {
                        nWeights.push_back(weights[i]);
                        }
                        for (int i=0; i<nWeights.size() ; i++) {                              /
      / Let's create a vector with three neurons
                        ptN.reset( new Neuron( ids[i] ) );
                        neuronContainer.push_back(ptN);
                        }
                        conContainerPtr->buildAndAppend(neuronContainer, nWeights
      );

                        std::vector<int> toSelect;
                        std::vector<double> vNewWeights;
                        toSelect.push_back(1);
                        toSelect.push_back(3);
                        toSelect.push_back(5);
                        toSelect.push_back(7);
                        vNewWeights.push_back(1000.1);
                        vNewWeights.push_back(3000.3);
                        vNewWeights.push_back(5000.5);
                        vNewWeights.push_back(7000.7);
                        conContainerPtr->setWeight(vNewWeights, toSelect);

        // Test
                        result = conContainerPtr->getWeight();
                        return wrap(result);

        // Now, result is a numeric vector with the values  1000.10, 9.12, 3000.3
      0, 4.14, 5000.50, 6.18, 7000.70, 8.14, 2.14, 1.26 and 11.32 .
```

See also

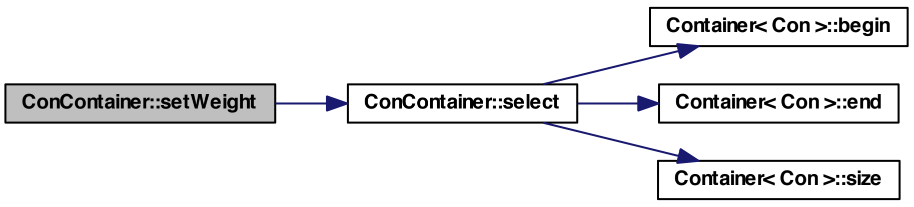
getWeigth and the unit test files, e.g. runit.Cpp.ConContainer.R, for further examples.

Definition at line 627 of file ConContainer.cpp.

References select().

```
{
BEGIN_RCPP return select(nIds)->setWeight(nWeights);
END_RCPP
}
```

Here is the call graph for this function:



5.9.4.7 bool ConContainer::setWeight (std::vector< double > *nWeights*)

Setter of the weight field of the Con objects related to ConContainer.

This function provides a convenient way of setting the values of the weight field of those Con objects pointed to by the smart pointer stored in the ConContainer object.

Parameters

nWeights	A numeric (double) vector with the weights to be set in the Con objects contained in the ConContainer object.

Returns

true in case no exception is thrown

```
    //================
    //Usage example:
    //================
    // Data set up
            std::vector<double> result;
                    int ids[]= {1, 2, 3};
                    double weights[] = {12.3, 1.2, 2.1 };
                    ConContainer conContainer;
                    std::vector<NeuronPtr> neuronContainer;
                    std::vector<double> nWeights;
                    NeuronPtr ptNeuron;

                    for (int i=0; i<=2; i++) {
                    ptNeuron.reset( new Neuron(ids[1]) );
                    neuronContainer.push_back(ptNeuron);
                    nWeights.push_back(0);                                  /
  / weights are set to 0
                    }
                    conContainer.buildAndAppend(neuronContainer, nWeights);
                    conContainer.show();

                    for (int i=0; i<=2; i++) {
                            nWeights.at(i)=weights[i];
                    }
    // Test
                    conContainer.setWeight(nWeights);                       /
  / weights are set to 12.3, 1.2 and 2.1
                    result=conContainer.getWeight();

    // Now result is a vector that contains the values 12.3, 1.2 and 2.1 .
```

See also

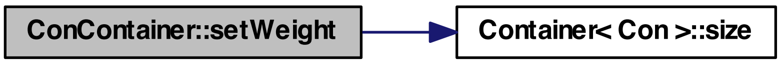
getWeight and the unit test files, e.g. runit.Cpp.ConContainer.R, for further examples.

Definition at line 270 of file ConContainer.cpp.

References Container< Con >::size().

```
{
  BEGIN_RCPP
  if (nWeights.empty())
    { throw std::range_error("[ C++ ConContainer::setWeight]: Error, nWeights is
      empty");}
  if (nWeights.size() != size())
    {
      throw std::range_error(
          "[C++ ConContainer::setWeight]: Error, nWeights.size() != collection.si
      ze()");
    }
  std::vector<double>::iterator itrWeight = nWeights.begin();
  foreach (ConPtr itr, *this)
    {
      itr->setWeight( *itrWeight );
      itrWeight++;
    }
  return true;
END_RCPP}
```

Here is the call graph for this function:



5.9.4.8 bool ConContainer::validate ( ) `[virtual]`

Object validator.

This method checks the object for internal coherence. A try / catch mechanism exits normal execution and returns control to the R terminal in case the contents of the ConContainer object are identified as corrupted.

Returns

true in case the checks are Ok.

Exceptions

An	std::range error if weight or from are not finite.

See also

The unit test files, e.g., runit.Cpp.ConContainer.R, for usage examples.

Implements Container< Con >.

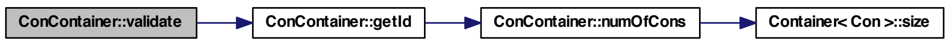
Definition at line 645 of file ConContainer.cpp.

References getId().

```
{
  BEGIN_RCPP

  std::vector<int>::iterator itr;
  std::vector<int> vIds = getId();
  sort(vIds.begin(), vIds.end());
  itr = adjacent_find(vIds.begin(), vIds.end());
  if (itr != vIds.end())
    throw std::range_error(
        "[C++ ConContainer::validate]: Error, duplicated Id.");
  Container<Con>::validate();
  return (true);
END_RCPP};
```

Here is the call graph for this function:



The documentation for this class was generated from the following files:

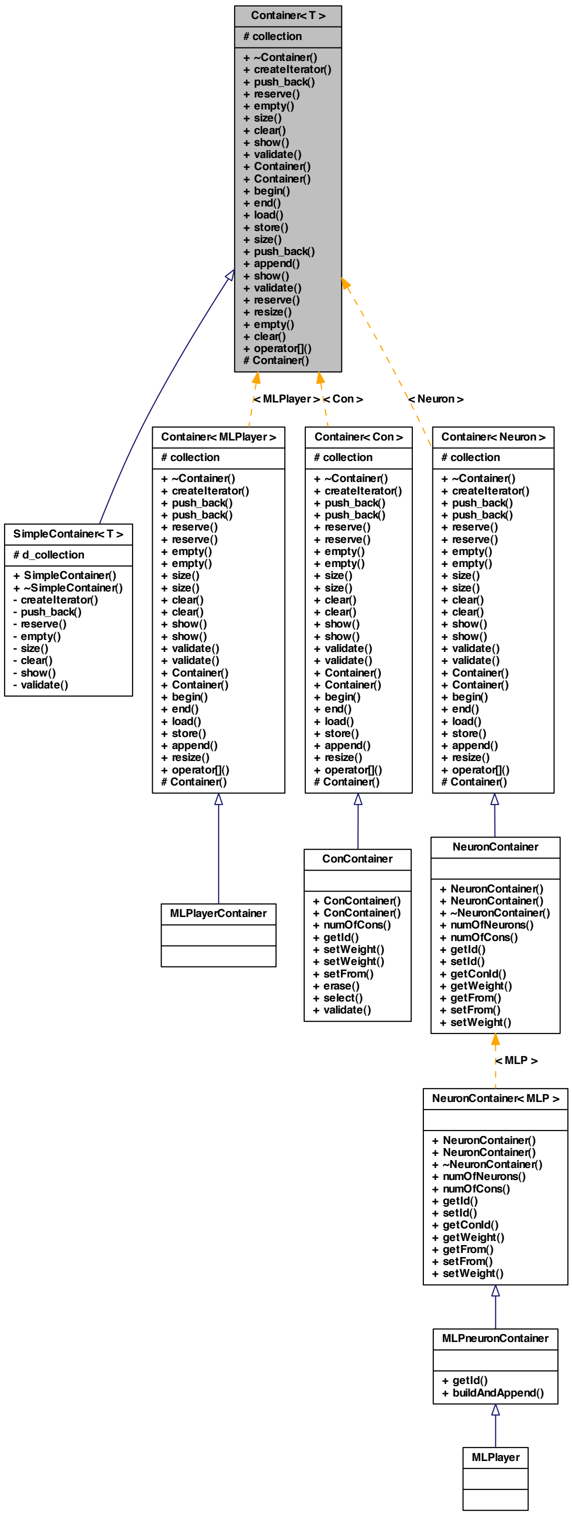
- pkg/AMORE/src/old/ConContainer.h
- pkg/AMORE/src/old/ConContainer.cpp

5.10 Container< T > Class Template Reference

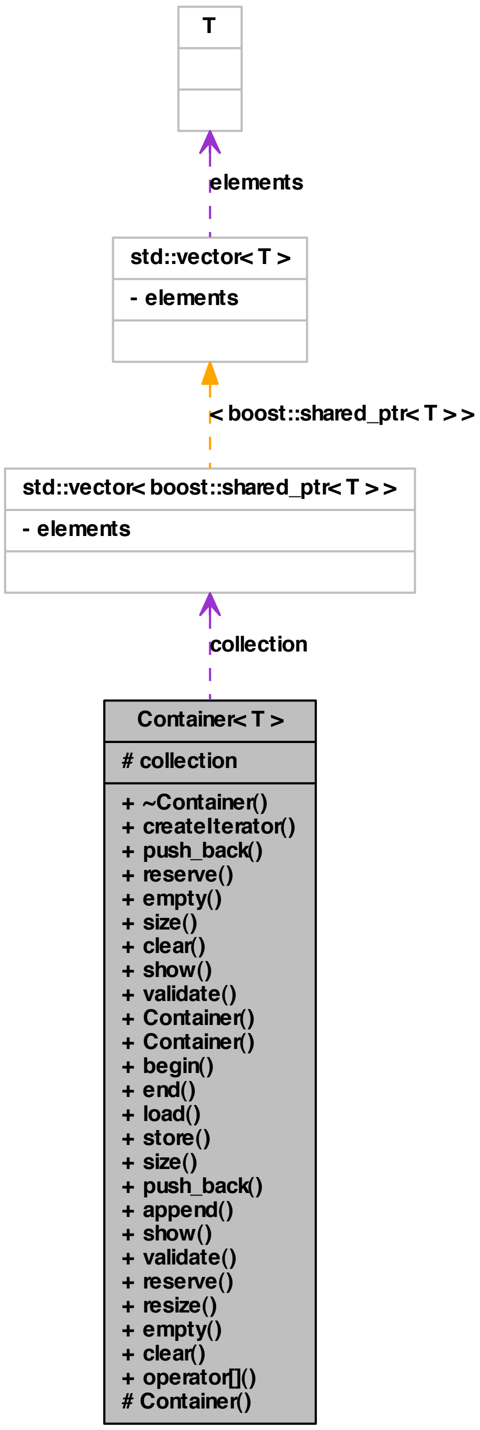
class Container -

`#include <Container.h>`

Inheritance diagram for Container< T >:



Collaboration diagram for Container< T >:



Public Types

- typedef std::vector< boost::shared_ptr< T > >::iterator iterator
- typedef std::vector< boost::shared_ptr< T > >::const_iterator const_iterator
- typedef boost::shared_ptr< T > value_type
- typedef value_type const & const_reference

Public Member Functions

- virtual ~Container ()
- virtual boost::shared_ptr< Iterator< T > > createIterator ()=0
- virtual void push_back (T const &const_reference)=0

  Append a shared_ptr at the end of collection.
- virtual void reserve (int n)=0
- virtual bool empty ()=0
- virtual size_type size ()=0

  Returns the size or length of the vector.
- virtual void clear ()=0
- virtual void show ()=0

  Pretty print of the Container<T>
- virtual bool validate ()=0

  Object validator.
- Container ()
- Container (std::vector< value > first, std::vector< value > last)
- iterator begin ()
- iterator end ()
- std::vector< boost::shared_ptr< T > > load ()

  collection field accessor function
- void store (typename std::vector< boost::shared_ptr< T > > collectionT)

  collection field accessor function
- size_type size ()
- void push_back (boost::shared_ptr< T > const &const_reference)

  Append a shared_ptr at the end of collection.
- void append (Container< T > containerT)

  Appends a Container<T> object.
- bool show ()
- bool validate ()
- void reserve (int n)
- void resize (int n)
- bool empty ()
- void clear ()
- boost::shared_ptr< T > & operator[] (size_type offset)

Protected Member Functions

- Container ()

Protected Attributes

- std::vector< boost::shared_ptr< T > > collection

5.10.1 Detailed Description

template<typename T>class Container< T >

class Container -

Definition at line 5 of file Container.h.

5.10.2 Member Typedef Documentation

5.10.2.1 template<typename T> typedef std::vector<boost::shared_ptr<T> >::const_iterator Container< T >::const_iterator

Reimplemented in ConContainer, and NeuronContainer.

Definition at line 22 of file Container.h.

5.10.2.2 template<typename T> typedef value_type const& Container< T >::const_reference

Reimplemented in ConContainer, and NeuronContainer.

Definition at line 26 of file Container.h.

5.10.2.3 template<typename T> typedef std::vector<boost::shared_ptr<T> >::iterator Container< T >::iterator

Reimplemented in ConContainer, and NeuronContainer.

Definition at line 19 of file Container.h.

5.10.2.4 template<typename T> typedef boost::shared_ptr<T> Container< T >::value_type

Reimplemented in ConContainer, and NeuronContainer.

Definition at line 24 of file Container.h.

5.10.3 Constructor & Destructor Documentation

5.10.3.1 template<typename T > Container< T >::~Container ( ) [virtual]

Definition at line 17 of file Container.cpp.

```
{
}
```

5.10.3.2 template<typename T > Container< T >::Container ( ) [protected]

Definition at line 11 of file Container.cpp.

```
{

}
```

5.10.3.3 template<typename T> Container< T >::Container ( )

5.10.3.4 template<typename T> Container< T >::Container (std::vector< value > *first*, std::vector< value > *last*)

5.10.4 Member Function Documentation

5.10.4.1 template<typename T> void Container< T >::append (Container< T > *v*)

Appends a Container<T> object.

This method inserts the collection field of a second object at the end of the collection field of the calling object.

Parameters

v	The Container<T> object to be added to the current one

See also

The unit test files, e.g., runit.Cpp.Container.R, for usage examples.

```
    //================
    //Usage example:
    //================
    // Data set up
                            std::vector<int> result;
                            std::vector<ConPtr> vcA, vcB;
                            ContainerNeuronPtr      neuronContainerPtr( new
  Container<Neuron>() );
                            ContainerConPtr conContainerPtrA( new
  Container<Con>() );
                            ContainerConPtr conContainerPtrB( new
  Container<Con>() );
```

```
                              ConPtr  ptC;
                              NeuronPtr ptN;
                              int ids[]= {1, 2, 3, 4, 5, 6};
                              double weights[] = {1.13, 2.22, 3.33, 5.6, 4.2, 3
.6 };
                              for (int i=0; i<=5 ; i++) {                     /
/ Let's create a vector with six neurons
                                      ptN.reset( new Neuron( ids[i] ) );
                                      neuronContainerPtr->push_back(ptN);
                              }
                              for (int i=0; i<=2 ; i++) {                     /
/ A vector with three connections
                                      ptC.reset( new Con( neuronContainerPtr->l
oad().at(i), weights[i]) );
                                      conContainerPtrA->push_back(ptC);
                              }
                              for (int i=3; i<=5 ; i++) {                     /
/ Another vector with three connections
                                      ptC.reset( new Con( neuronContainerPtr->l
oad().at(i), weights[i]) );
                                      conContainerPtrB->push_back(ptC);
                              }
  // Test
                              conContainerPtrA->append(*conContainerPtrB);
                              conContainerPtrA->validate();
                              conContainerPtrA->show() ;

  // After execution of the code above, the output at the R terminal would
display:
  //
  //  From:       1       Weight=        1.130000
  //      From:   2       Weight=        2.220000
  //      From:   3       Weight=        3.330000
  //      From:   4       Weight=        5.600000
  //      From:   5       Weight=        4.200000
  //      From:   6       Weight=        3.600000
```

See also

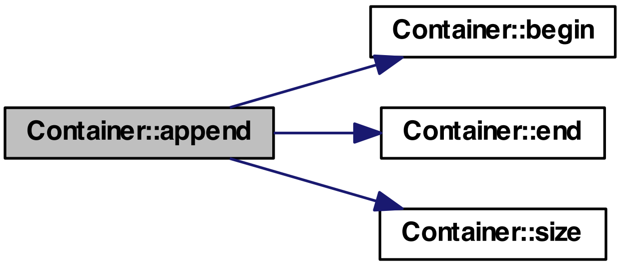
Container::store , Container::push_back and the unit test files, e.g., runit.Cpp.Container.R, for usage examples.

Definition at line 207 of file Container.cpp.

References Container< T >::begin(), Container< T >::end(), and Container< T >::size().

```
{
  reserve(size() + v.size());
  collection.insert(end(), v.begin(), v.end());
}
```

Here is the call graph for this function:



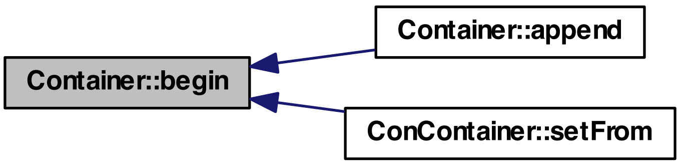
5.10.4.2 template<typename T > std::vector< boost::shared_ptr< T > >::iterator Container< T >::begin ( )

Definition at line 22 of file Container.cpp.

Referenced by Container< T >::append(), and ConContainer::setFrom().

```
{
  return collection.begin();
}
```

Here is the caller graph for this function:



5.10.4.3 template<typename T > void Container< T >::clear ( ) [pure virtual]

Implemented in SimpleContainer< T >.

Definition at line 177 of file Container.cpp.

```
{
  collection.clear();
}
```

5.10.4.4 template<typename T> void Container< T >::clear ( )

Reimplemented in SimpleContainer< T >.

5.10.4.5 template<typename T > boost::shared_ptr< IteratorInterface< T > > Container< T >::createIterator ( ) [pure virtual]

Implemented in SimpleContainer< T >.

Definition at line 23 of file Container.cpp.

```
{
  boost::shared_ptr< ContainerIterator<T> > containerIteratorPtr( new Container
    Iterator<T> ());
  containerIteratorPtr->d_container = this;
  containerIteratorPtr->d_iterator = collection.begin();
  return containerIteratorPtr;
}
```

5.10.4.6 template<typename T > bool Container< T >::empty ( ) [pure virtual]

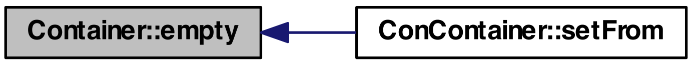
Implemented in SimpleContainer< T >.

Definition at line 163 of file Container.cpp.

Referenced by ConContainer::setFrom().

```
{
  return (collection.empty());
}
```

Here is the caller graph for this function:



5.10.4.7 template<typename T> bool Container< T >::empty ( )

Reimplemented in SimpleContainer< T >.

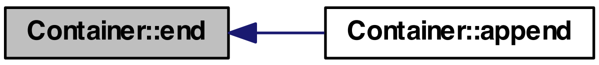
5.10.4.8 template<typename T > std::vector< boost::shared_ptr< T > >::iterator Container< T >::end ( )

Definition at line 29 of file Container.cpp.

Referenced by Container< T >::append().

```
{
  return collection.end();
}
```

Here is the caller graph for this function:



5.10.4.9 template<typename T > std::vector< boost::shared_ptr< T > > Container< T >::load ( )

collection field accessor function

This method allows access to the data stored in the collection field.

Returns

The collection vector.

```
    //================
    //Usage example:
    //================
            // Data set up
                            std::vector<int> result;
                            std::vector<ConPtr> vcA, vcB;
                            ContainerNeuronPtr      neuronContainerPtr( new
  Container<Neuron>() );
                            ContainerConPtr conContainerPtr( new
  Container<Con>() );
                            ConPtr  ptC;
                            NeuronPtr ptN;
                            int ids[]= {10, 20, 30};
```

```
                                double weights[] = {1.13, 2.22, 3.33 };
                                for (int i=0; i<=2 ; i++) {                         /
      / Let's create a vector with three neurons
                                        ptN.reset( new Neuron( ids[i] ) );
                                        neuronContainerPtr->push_back(ptN);
                                }
                                for (int i=0; i<=2 ; i++) {                         /
      / and a vector with three connections
                                        ptC.reset( new Con( neuronContainerPtr->l
      oad().at(i), weights[i]) );
                                        vcA.push_back(ptC);
                                }
                // Test
                        conContainerPtr->store(vcA);
                        vcB = conContainerPtr->load();
                        for (int i=0; i<=2 ; i++) {                                 /
      / get Ids. Container does not have getId defined
                                        result.push_back( vcB.at(i)->getId());
                        }

                // Now, result is an integer vector with values 10, 20, 30.
```

See also

store and the unit test files, e.g., runit.Cpp.Container.R, for usage examples.

Definition at line 254 of file Container.cpp.

```
  {
    return collection;
  }
```

5.10.4.10 template<typename T > boost::shared_ptr< T > & Container< T >::operator[] (size_type *offset*)

Definition at line 317 of file Container.cpp.

```
  {
    return collection[offset];
  }
```

5.10.4.11 template<typename T> void Container< T >::push_back (T const & *reference*) [pure virtual]

Append a shared_ptr at the end of collection.

Implements push_back for the Container class

Parameters

TsharedPtr	A shared_ptr pointer to be inserted at the end of collection

```
                //================
                //Usage example:
                //================
                // Data set up
                        Neuron N1, N2, N3;
                        Container<Con> conContainer;
                        std::vector<ConPtr> vc;
                        std::vector<int> result;
                        N1.setId(10);
                        N2.setId(20);
                        N3.setId(30);
                // Test
                        ConPtr ptCon( new Con(&N1, 1.13) );     // Create new Con
         and initialize ptCon
                        conContainer.push_back(ptCon);                          /
        / push_back
                        ptCon.reset(  new Con(&N2, 2.22) );             // create
         new Con and assign to ptCon
                        conContainer.push_back(ptCon);                          /
        / push_back
                        ptCon.reset(  new Con(&N3, 3.33) );             // create
         new Con and assign to ptCon
                        conContainer.push_back(ptCon);                          /
        / push_back

                        vc = conContainer.load();

                        result.push_back(vc.at(0)->getId());
                        result.push_back(vc.at(1)->getId());
                        result.push_back(vc.at(2)->getId());
          // After execution of this code, result contains a numeric vector with va
        lues 10, 20 and 30.
```

See also

C++ documentation for std::vector::push_back and the unit test files, e.g., runit.Cpp.Container.R, for usage examples.

Implemented in SimpleContainer< T >.

Definition at line 68 of file Container.cpp.

```
{
  collection.push_back(reference);
}
```

5.10.4.12 template<typename T> void Container< T >::push_back (boost::shared_ptr< T > const & *const_reference*)

Append a shared_ptr at the end of collection.

Implements push_back for the Container class

Parameters

TsharedPtr	A shared_ptr pointer to be inserted at the end of collection

```
                //================
                //Usage example:
                //=================
                // Data set up
                        Neuron N1, N2, N3;
                        Container<Con> conContainer;
                        std::vector<ConPtr> vc;
                        std::vector<int> result;
                        N1.setId(10);
                        N2.setId(20);
                        N3.setId(30);
                // Test
                        ConPtr ptCon( new Con(&N1, 1.13) );     // Create new Con
 and initialize ptCon
                        conContainer.push_back(ptCon);                          /
/ push_back
                        ptCon.reset(  new Con(&N2, 2.22) );             // create
 new Con and assign to ptCon
                        conContainer.push_back(ptCon);                          /
/ push_back
                        ptCon.reset(  new Con(&N3, 3.33) );             // create
 new Con and assign to ptCon
                        conContainer.push_back(ptCon);                          /
/ push_back

                        vc = conContainer.load();

                        result.push_back(vc.at(0)->getId());
                        result.push_back(vc.at(1)->getId());
                        result.push_back(vc.at(2)->getId());
  // After execution of this code, result contains a numeric vector with va
lues 10, 20 and 30.
```

See also

C++ documentation for std::vector::push_back and the unit test files, e.g., runit.Cpp.Container.R, for usage examples.

Definition at line 71 of file Container.cpp.

```
{
  collection.push_back(const_reference);
}
```

5.10.4.13 template<typename T> void Container< T >::reserve (int *n*)

Reimplemented in SimpleContainer< T >.

5.10.4.14 template<typename T > void Container< T >::reserve (int *n*) [pure virtual]

Implemented in SimpleContainer< T >.

Definition at line 170 of file Container.cpp.

```
{
    collection.reserve(n);
  }
```

5.10.4.15 template<typename T > void Container< T >::resize (int *n*)

Definition at line 289 of file Container.cpp.

```
  {
    collection.resize(n);
  }
```

5.10.4.16 template<typename T> bool Container< T >::show ( )

Reimplemented in SimpleContainer< T >.

5.10.4.17 template<typename T > bool Container< T >::show ( ) [pure virtual]

Pretty print of the Container<T>

This method outputs in the R terminal the contents of Container::collection.

Returns

true in case everything works without throwing an exception

*

```
                //================
                //Usage example:
                //================
                // Data set up
                        ContainerNeuronPtr      neuronContainerPtr( new
      Container<Neuron>() );
                        ContainerConPtr conContainerPtr( new Container<Con>() );
                        ConPtr  ptC;
                        NeuronPtr ptN;
                        int ids[]= {10, 20, 30};
                        double weights[] = {1.13, 2.22, 3.33 };

                        for (int i=0; i<=2 ; i++) {                            /
      / Let's create a vector with three neurons
                                ptN.reset( new Neuron( ids[i] ) );
                                neuronContainerPtr->push_back(ptN);
                        }

                        for (int i=0; i<=2 ; i++) {                            /
      / and a vector with three connections
                                ptC.reset( new Con( neuronContainerPtr->load().at
      (i), weights[i]) );
                                conContainerPtr->push_back(ptC);
                        }

                // Test
                conContainerPtr->show() ;

        // The output at the R terminal would display:
        //
        //      # From:  10      Weight=         1.130000
        //      # From:  20      Weight=         2.220000
        //      # From:  30      Weight=         3.330000
        //
```

See also

The unit test files, e.g., runit.Cpp.Container.R, for usage examples.

Implemented in SimpleContainer< T >.

Definition at line 118 of file Container.cpp.

```
{

  for (typename std::vector<T>::iterator itr(collection.begin()); itr
      != collection.end(); ++itr)
    {
      itr->show();
    }

}
```

5.10.4.18 template<typename T> size_type Container< T >::size ( )

Reimplemented in SimpleContainer< T >.

5.10.4.19 template<typename T > size_type Container< T >::size ( ) [pure virtual]

Returns the size or length of the vector.

This method returns the size of the vector. In the classes derived from Container<T> this is aliased as numOfCons, numOfNeurons and numOfLayers. The unit test files, e.g., runit.Cpp.Container.R, for usage examples.

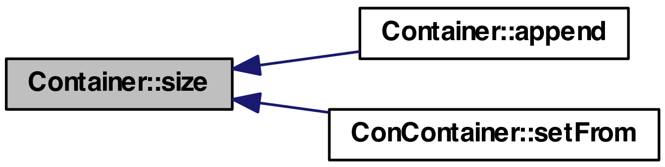
Implemented in SimpleContainer< T >.

Definition at line 155 of file Container.cpp.

Referenced by Container< T >::append(), and ConContainer::setFrom().

```
{
  return collection.size();
}
```

Here is the caller graph for this function:



5.10.4.20 template<typename T> void Container< T >::store (typename std::vector< boost::shared_ptr< T > > *collectionT*)

collection field accessor function

This method sets the value of the data stored in the collection field.

Parameters

v	The vector of smart pointers to be stored in the collection field

See also

load and the unit test files, e.g., runit.Cpp.Container.R, for usage examples.

Definition at line 268 of file Container.cpp.

```
{
  collection = collectionT;
}
```

5.10.4.21 template<typename T> bool Container< T >::validate ( )

Reimplemented in SimpleContainer< T >, and ConContainer.

5.10.4.22 template<typename T > bool Container< T >::validate ( ) `[pure virtual]`

Object validator.

This method checks the object for internal coherence. This method calls the validate method for each element in collection,

See also

The unit test files, e.g., runit.Cpp.Container.R, for usage examples.

Implemented in SimpleContainer< T >, and ConContainer.

Definition at line 136 of file Container.cpp.

```
{
  for (typename std::vector<T>::iterator itr(collection.begin()); itr
      != collection.end(); ++itr)
    {
      itr->validate();
    }
  return true;
}
```

5.10.5 Member Data Documentation

5.10.5.1 template<typename T> std::vector<boost::shared_ptr<T> > Container< T >::collection [protected]

Definition at line 15 of file Container.h.

The documentation for this class was generated from the following files:

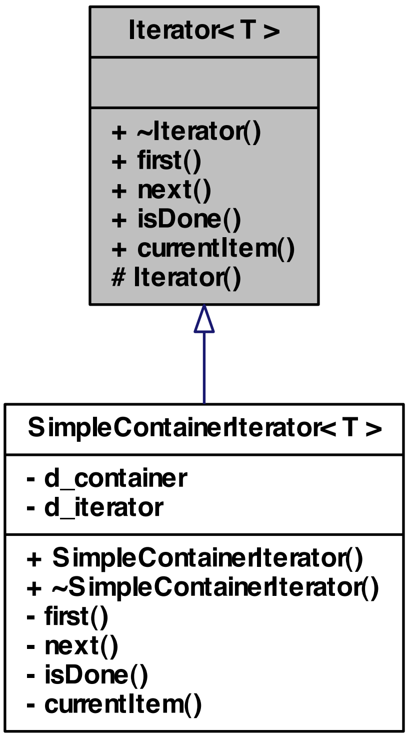
- pkg/AMORE/src/dia/Container.h
- pkg/AMORE/src/old/Container.h
- pkg/AMORE/src/Container.cpp
- pkg/AMORE/src/old/Container.cpp

5.11 Iterator< T > Class Template Reference

class Iterator -

`#include <Iterator.h>`

Inheritance diagram for Iterator< T >:



Public Member Functions

- virtual ∼Iterator ()
- virtual void first ()=0
- virtual void next ()=0
- virtual bool isDone ()=0
- virtual T currentItem ()=0

Protected Member Functions

- Iterator ()

5.11.1 Detailed Description

template<typename T>class Iterator< T >

class Iterator -

Definition at line 5 of file Iterator.h.

5.11.2 Constructor & Destructor Documentation

5.11.2.1 template<typename T > virtual Iterator< T >::~Iterator ( ) `[virtual]`

5.11.2.2 template<typename T > Iterator< T >::Iterator ( ) `[protected]`

5.11.3 Member Function Documentation

5.11.3.1 template<typename T > virtual T Iterator< T >::currentItem ( ) `[pure virtual]`

Implemented in SimpleContainerIterator< T >.

5.11.3.2 template<typename T > virtual void Iterator< T >::first ( ) `[pure virtual]`

Implemented in SimpleContainerIterator< T >.

5.11.3.3 template<typename T > virtual bool Iterator< T >::isDone ( ) `[pure virtual]`

Implemented in SimpleContainerIterator< T >.

5.11.3.4 template<typename T > virtual void Iterator< T >::next ( ) `[pure virtual]`

Implemented in SimpleContainerIterator< T >.

The documentation for this class was generated from the following file:

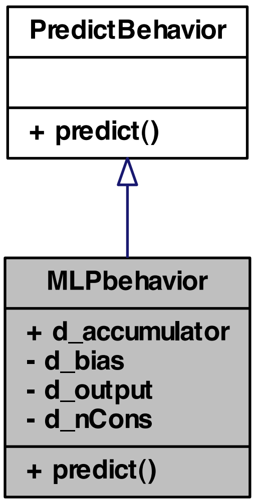
- pkg/AMORE/src/dia/Iterator.h

5.12 MLPbehavior Class Reference

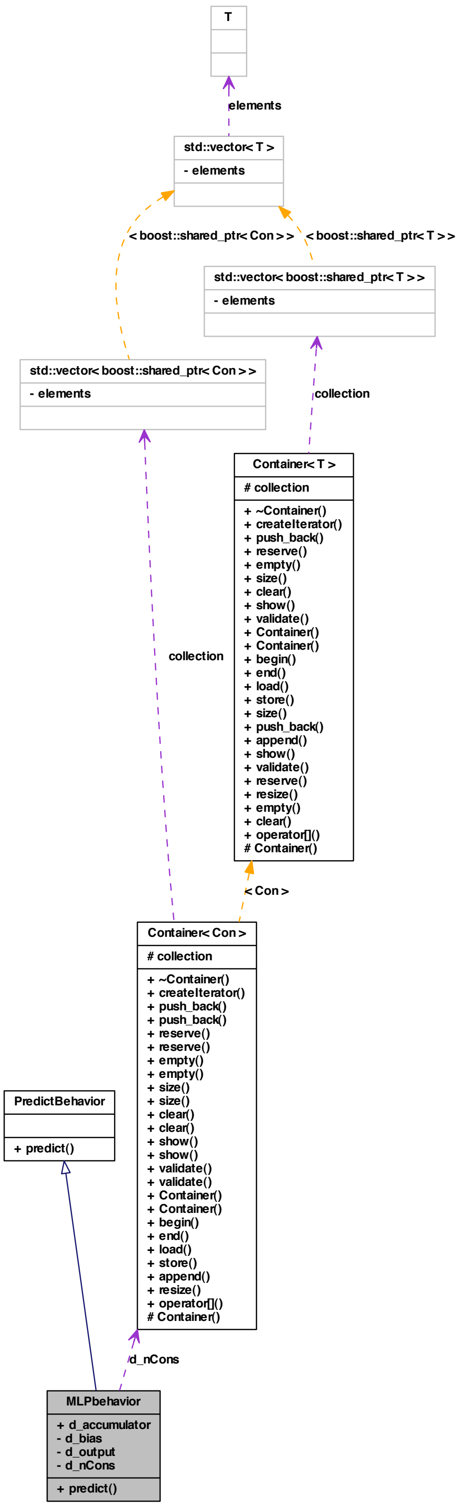
class MLPbehavior -

`#include <MLPbehavior.h>`

Inheritance diagram for MLPbehavior:



Collaboration diagram for MLPbehavior:



Public Member Functions

- void predict ()

Public Attributes

- double d_accumulator

Private Attributes

- double d_bias
- double d_output
- Container< Con > d_nCons

5.12.1 Detailed Description

class MLPbehavior -

Definition at line 5 of file MLPbehavior.h.

5.12.2 Member Function Documentation

5.12.2.1 void MLPbehavior::predict ( )

Reimplemented from PredictBehavior.

5.12.3 Member Data Documentation

5.12.3.1 double **MLPbehavior::d_accumulator**

Definition at line 8 of file MLPbehavior.h.

5.12.3.2 double **MLPbehavior::d_bias** `[private]`

Definition at line 10 of file MLPbehavior.h.

5.12.3.3 **Container<Con> MLPbehavior::d_nCons** `[private]`

Definition at line 12 of file MLPbehavior.h.

5.12.3.4 double MLPbehavior::d_output [private]

Definition at line 11 of file MLPbehavior.h.

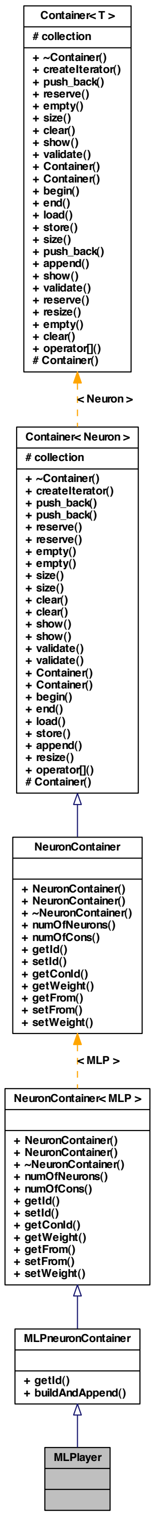
The documentation for this class was generated from the following file:

- pkg/AMORE/src/dia/MLPbehavior.h

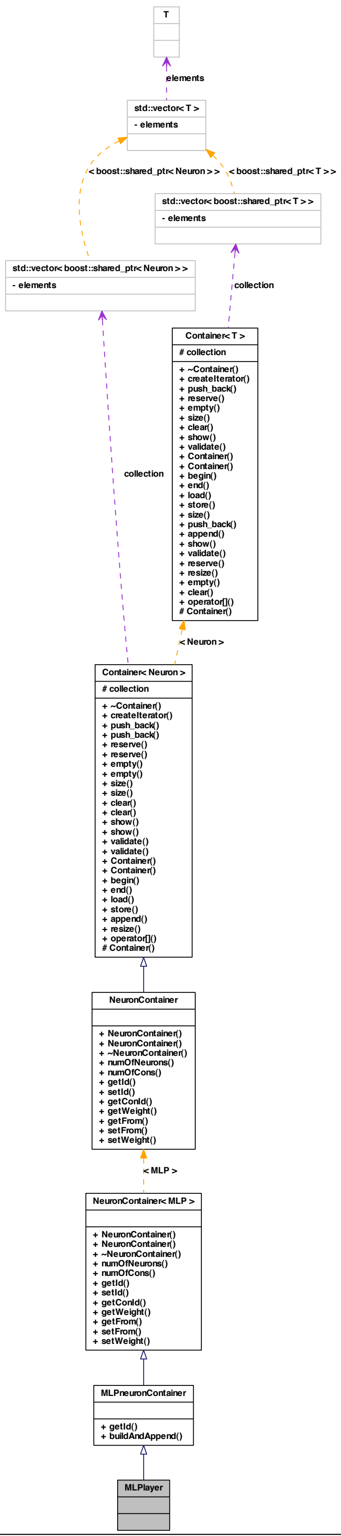
5.13 MLPlayer Class Reference

```
#include <MLPlayer.h>
```

Inheritance diagram for MLPlayer:



Collaboration diagram for MLPlayer:



5.13.1 Detailed Description

Definition at line 1 of file MLPlayer.h.

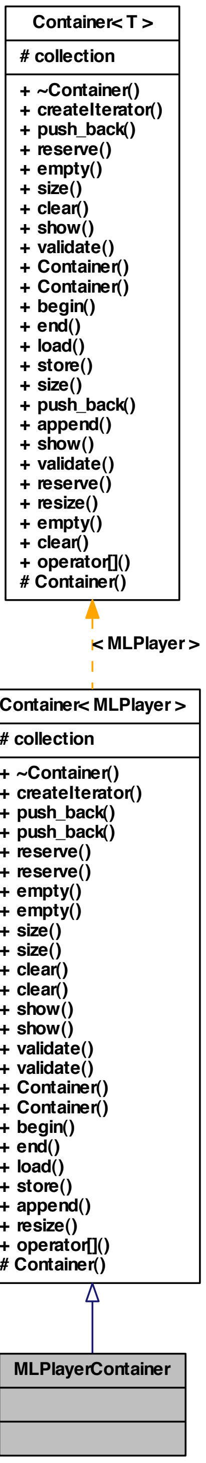
The documentation for this class was generated from the following file:

- pkg/AMORE/src/old/MLPlayer.h

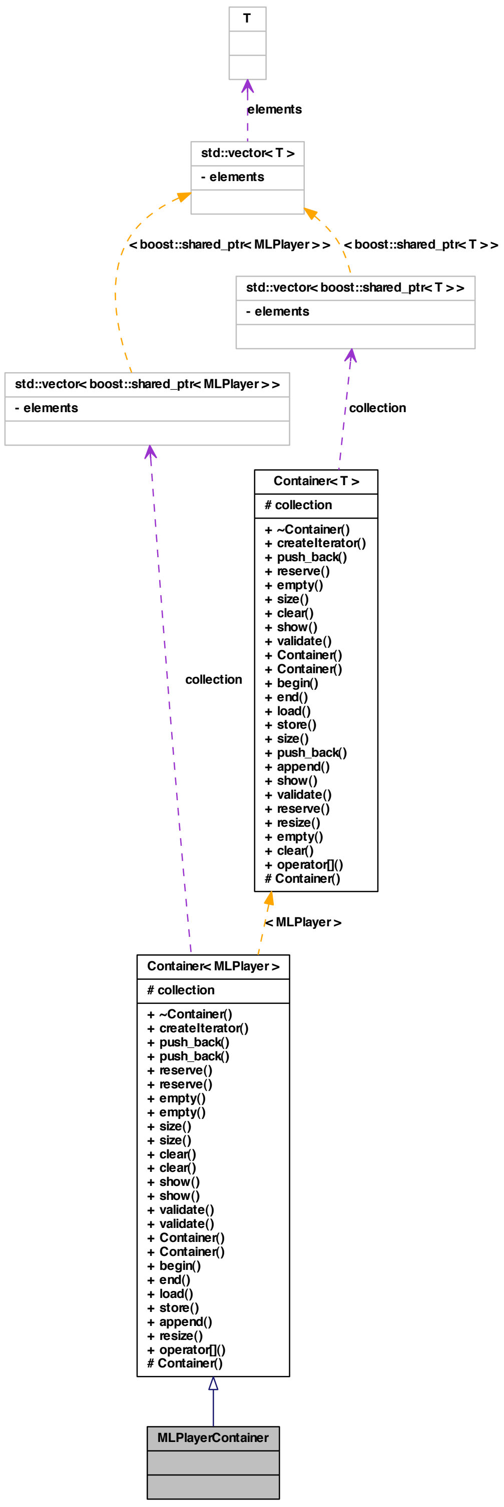
5.14 MLPlayerContainer Class Reference

```
#include <MLPlayerContainer.h>
```

Inheritance diagram for MLPlayerContainer:



Collaboration diagram for MLPlayerContainer:



5.14.1 Detailed Description

Definition at line 1 of file MLPlayerContainer.h.

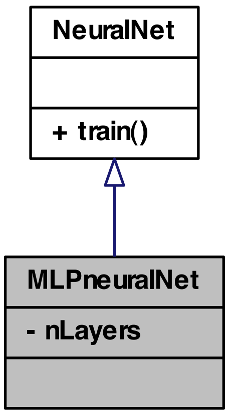
The documentation for this class was generated from the following file:

- pkg/AMORE/src/old/MLPlayerContainer.h

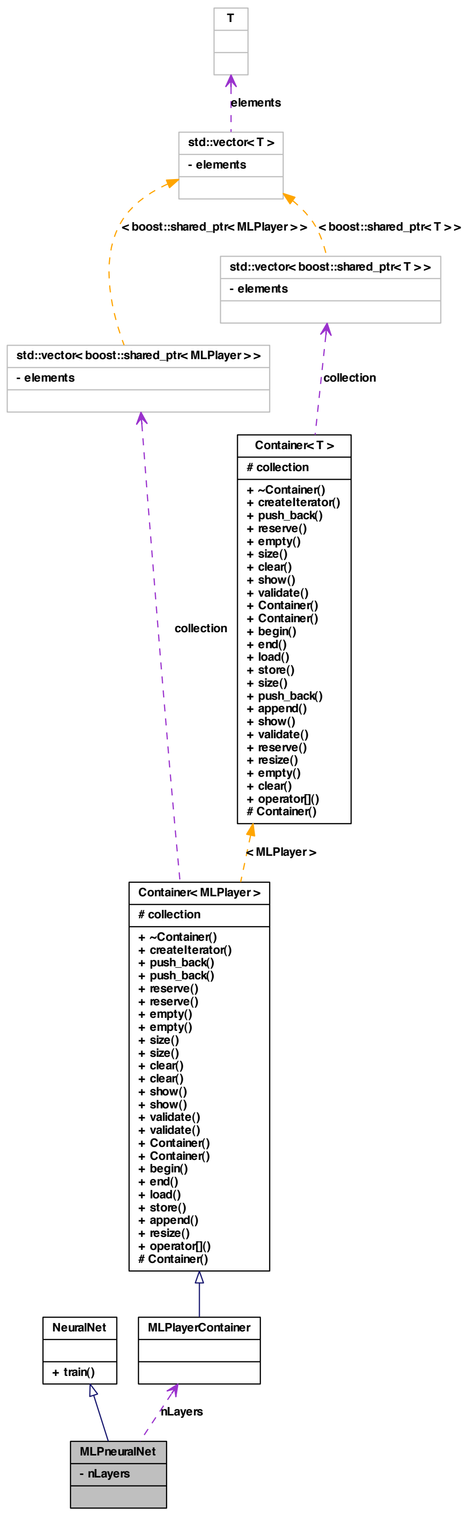
5.15 MLPneuralNet Class Reference

```
#include <MLPneuralNet.h>
```

Inheritance diagram for MLPneuralNet:



Collaboration diagram for MLPneuralNet:



Private Attributes

- MLPlayerContainer nLayers

5.15.1 Detailed Description

Definition at line 1 of file MLPneuralNet.h.

5.15.2 Member Data Documentation

5.15.2.1 MLPlayerContainer MLPneuralNet::nLayers `[private]`

Definition at line 2 of file MLPneuralNet.h.

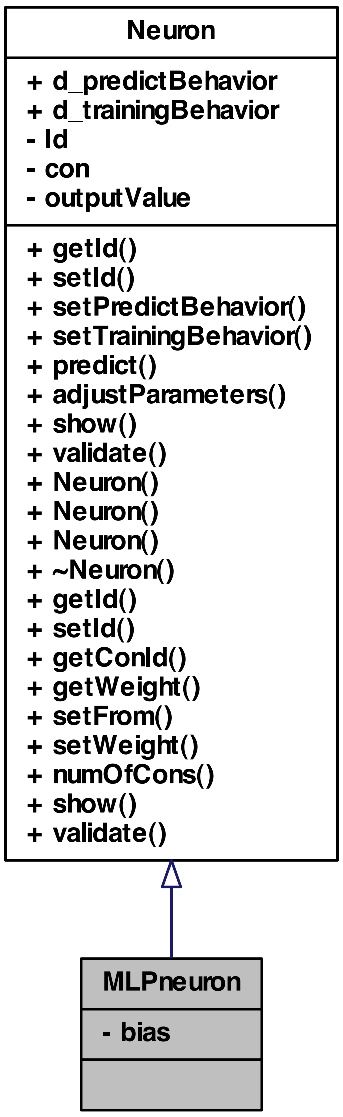
The documentation for this class was generated from the following file:

- pkg/AMORE/src/old/MLPneuralNet.h

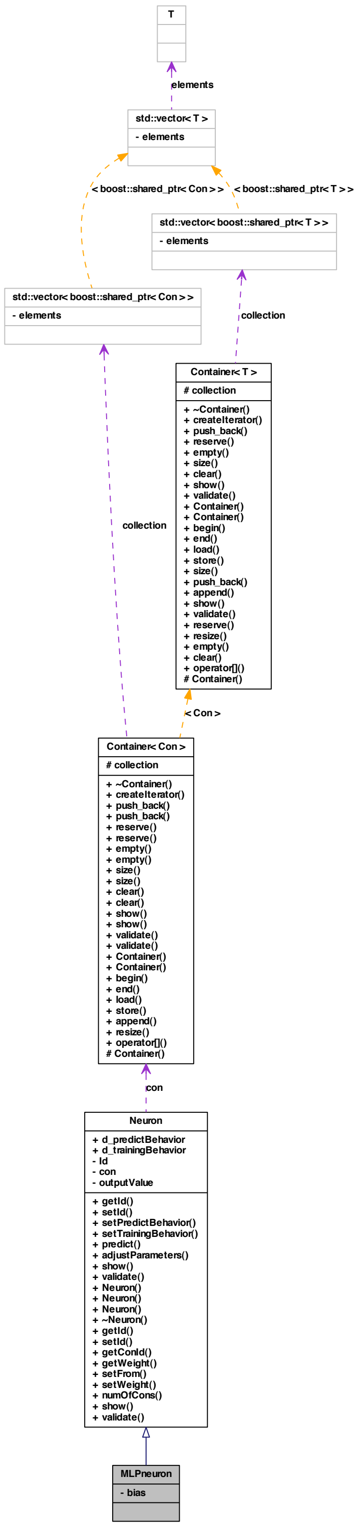
5.16 MLPneuron Class Reference

```
#include <MLPneuron.h>
```

Inheritance diagram for MLPneuron:



Collaboration diagram for MLPneuron:



Private Attributes

- int bias

5.16.1 Detailed Description

Definition at line 1 of file MLPneuron.h.

5.16.2 Member Data Documentation

5.16.2.1 int **MLPneuron::bias** `[private]`

Definition at line 2 of file MLPneuron.h.

The documentation for this class was generated from the following file:

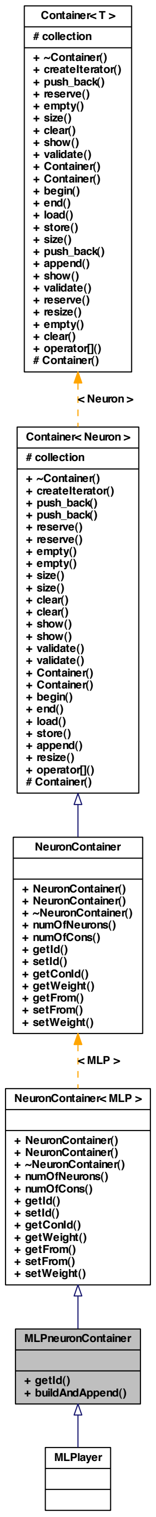
- pkg/AMORE/src/old/MLPneuron.h

5.17 MLPneuronContainer Class Reference

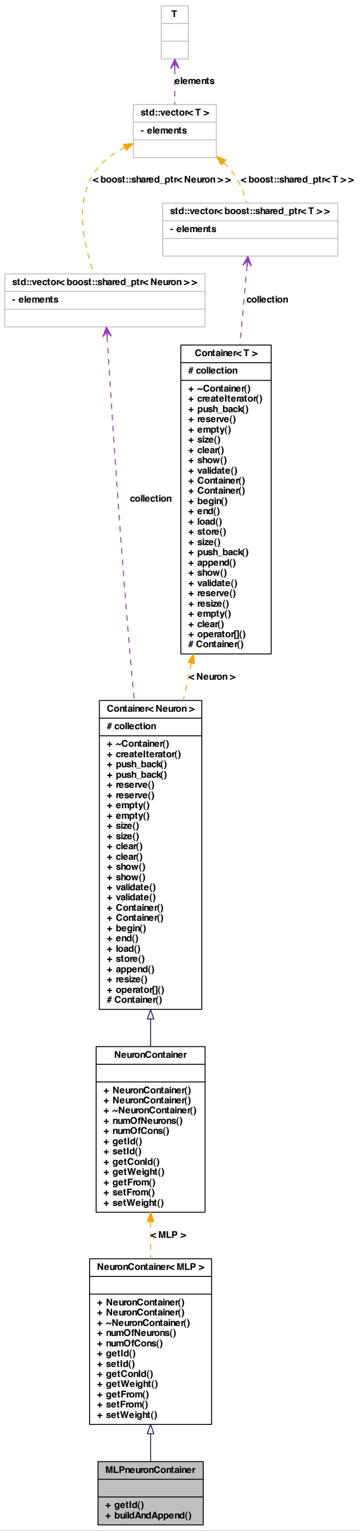
A vector of connections.

`#include <MLPneuronContainer.h>`

Inheritance diagram for MLPneuronContainer:



Collaboration diagram for MLPneuronContainer:



Public Member Functions

- std::vector< int > getId ()
- bool buildAndAppend (std::vector< int > IDS, std::vector< int > BIAS, ConContainer VC)

5.17.1 Detailed Description

A vector of connections.

The ConContainer class provides a simple class for a vector of connections. It's named after the R equivalent Reference Class.

Definition at line 16 of file MLPneuronContainer.h.

5.17.2 Member Function Documentation

5.17.2.1 bool MLPneuronContainer::buildAndAppend (std::vector< int > *IDS,* std::vector< int > *BIAS,* ConContainer *VC*)

5.17.2.2 std::vector<int> MLPneuronContainer::getId ( )

Reimplemented from NeuronContainer< MLP >.

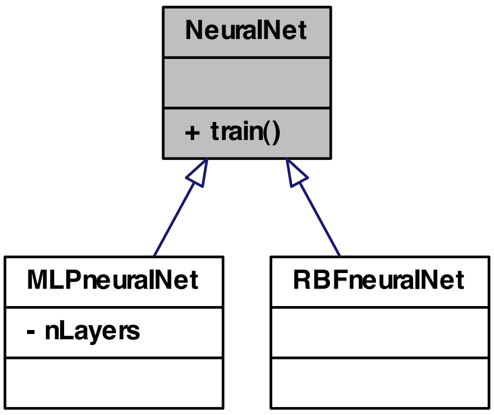
The documentation for this class was generated from the following file:

- pkg/AMORE/src/old/MLPneuronContainer.h

5.18 NeuralNet Class Reference

```
#include <NeuralNet.h>
```

Inheritance diagram for NeuralNet:



Public Member Functions

- virtual void train ()=0

5.18.1 Detailed Description

Definition at line 1 of file NeuralNet.h.

5.18.2 Member Function Documentation

5.18.2.1 virtual void NeuralNet::train ( ) `[pure virtual]`

The documentation for this class was generated from the following file:

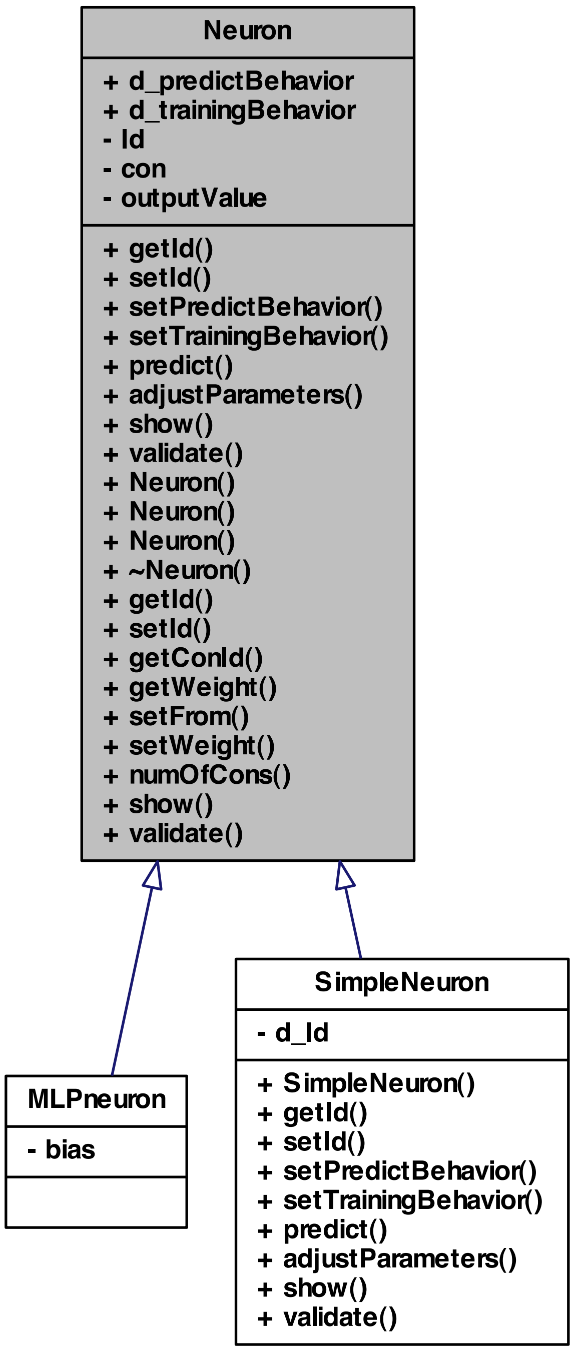
- pkg/AMORE/src/old/NeuralNet.h

5.19 Neuron Class Reference

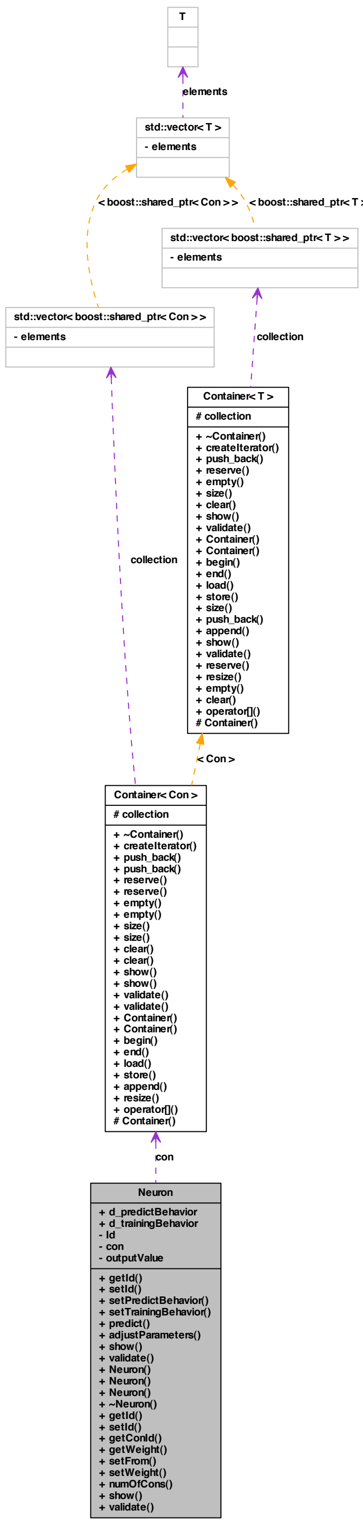
class Neuron -

`#include <Neuron.h>`

Inheritance diagram for Neuron:



Collaboration diagram for Neuron:



Public Member Functions

- virtual Handler getId ()=0
- virtual void setId (Handler Id)=0
- virtual void setPredictBehavior (PredictBehavior &predictBehavior)=0
- virtual void setTrainingBehavior (TrainingBehavior &trainingBehavior)=0
- virtual void predict ()=0
- virtual void adjustParameters ()=0
- virtual void show ()()=0
- virtual bool validate ()=0
- Neuron ()
- Neuron (int Id)
- Neuron (int Id, ConContainer con)
- ∼Neuron ()
- int getId ()
- void setId (int value)
- std::vector< int > getConId ()
- std::vector< double > getWeight ()
- bool setFrom (NeuronContainer neuronContainer)
- bool setWeight (std::vector< double > nWeights)
- int numOfCons ()
- bool show ()
- bool validate ()

Public Attributes

- PredictBehaviorRef d_predictBehavior
- TrainingBehaviorRef d_trainingBehavior

Private Attributes

- int Id

  An integer variable with the Neuron Id.
- ConContainer con

  A vector of input connections.
- double outputValue

5.19.1 Detailed Description

class Neuron -

A class to handle the information contained in a general Neuron.

A general class for neurons. The MLPneuron and RBFneuron classes will specialize this general class

Definition at line 3 of file Neuron.h.

5.19.2 Constructor & Destructor Documentation

5.19.2.1 Neuron::Neuron ( )

Definition at line 10 of file Neuron.cpp.

```
                 :
  d_Id(NA_INTEGER) //, nCons()
{
}
```

5.19.2.2 Neuron::Neuron (int *Id*)

Definition at line 15 of file Neuron.cpp.

```
                       :
  d_Id(Id)//, nCons()
{
}
```

5.19.2.3 Neuron::Neuron (int *Id*, ConContainer *con*)

5.19.2.4 Neuron::∼Neuron ( )

5.19.3 Member Function Documentation

5.19.3.1 virtual void Neuron::adjustParameters ( ) [pure virtual]

Implemented in SimpleNeuron.

5.19.3.2 std::vector<int> Neuron::getConId ( )

5.19.3.3 int Neuron::getId ( )

Reimplemented in SimpleNeuron.

5.19.3.4 int Neuron::getId ( ) [pure virtual]

Implemented in SimpleNeuron.

Definition at line 26 of file Neuron.cpp.

References Id.

```
{
  return Id;
}
```

5.19.3.5 std::vector<double> Neuron::getWeight ( )

5.19.3.6 int Neuron::numOfCons ( )

5.19.3.7 virtual void Neuron::predict ( ) `[pure virtual]`

Implemented in SimpleNeuron.

5.19.3.8 bool Neuron::setFrom (NeuronContainer *neuronContainer*)

5.19.3.9 void Neuron::setId (int *value*)

Reimplemented in SimpleNeuron.

5.19.3.10 void Neuron::setId (Handler *Id*) `[pure virtual]`

Implemented in SimpleNeuron.

Definition at line 32 of file Neuron.cpp.

References Id.

```
{
  Id = value;
}
```

5.19.3.11 virtual void Neuron::setPredictBehavior (PredictBehavior & *predictBehavior*) `[pure virtual]`

Implemented in SimpleNeuron.

5.19.3.12 virtual void Neuron::setTrainingBehavior (TrainingBehavior & *trainingBehavior*) `[pure virtual]`

Implemented in SimpleNeuron.

5.19.3.13 bool Neuron::setWeight (std::vector< double > *nWeights*)

5.19.3.14 bool Neuron::show ( ) `[pure virtual]`

Implemented in SimpleNeuron.

Definition at line 54 of file Neuron.cpp.

References Id.

```
{
  int id = Id();
  Rprintf("\n------------------------\n");
  if (id == NA_INTEGER)
    {
      Rprintf("\n Id: NA, Invalid neuron Id");
    }
  else
    {
      Rprintf("\n Id: %d", id);
    }
  Rprintf("\n------------------------\n");
#if 0

  if (nCons.size() == 0)
    {
      Rprintf("\n No connections defined");
    }
  else
    {
      nCons.show();
    }
  Rprintf("\n------------------------\n");
#endif
}
```

5.19.3.15 bool Neuron::show ( )

Reimplemented in SimpleNeuron.

5.19.3.16 bool Neuron::validate ( ) `[pure virtual]`

Implemented in SimpleNeuron.

Definition at line 82 of file Neuron.cpp.

References Id.

```
{
  BEGIN_RCPP
  if (Id() == NA_INTEGER ) throw std::range_error("[C++ Neuron::validate]: Error,
       Id is NA.");
 // nCons.validate();
  return (TRUE);
END_RCPP}
```

5.19.3.17 bool Neuron::validate ( )

Reimplemented in SimpleNeuron.

5.19.4 Member Data Documentation

5.19.4.1 ConContainer Neuron::con [private]

A vector of input connections.

Definition at line 29 of file Neuron.h.

5.19.4.2 PredictBehaviorRef Neuron::d_predictBehavior

Definition at line 6 of file Neuron.h.

5.19.4.3 TrainingBehaviorRef Neuron::d_trainingBehavior

Definition at line 7 of file Neuron.h.

5.19.4.4 int Neuron::Id [private]

An integer variable with the Neuron Id.

The Neuron Id provides a name to the neuron. This value is not expected to be used neither during simulation nor training but it provides an easy reference for human readers.

Definition at line 22 of file Neuron.h.

Referenced by getId(), setId(), show(), and validate().

5.19.4.5 double Neuron::outputValue [private]

Definition at line 30 of file Neuron.h.

The documentation for this class was generated from the following files:

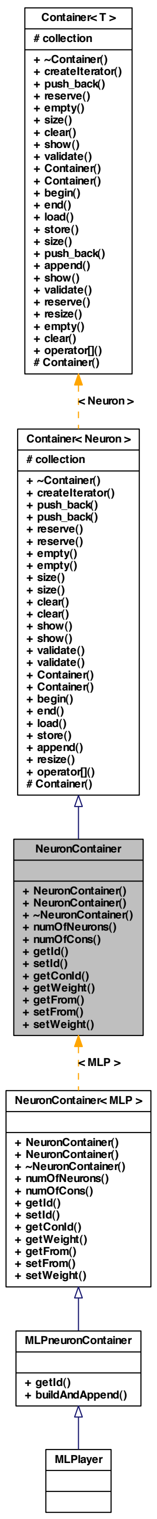
- pkg/AMORE/src/dia/Neuron.h
- pkg/AMORE/src/old/Neuron.h
- pkg/AMORE/src/Neuron.cpp
- pkg/AMORE/src/old/Neuron.cpp

5.20 NeuronContainer Class Reference

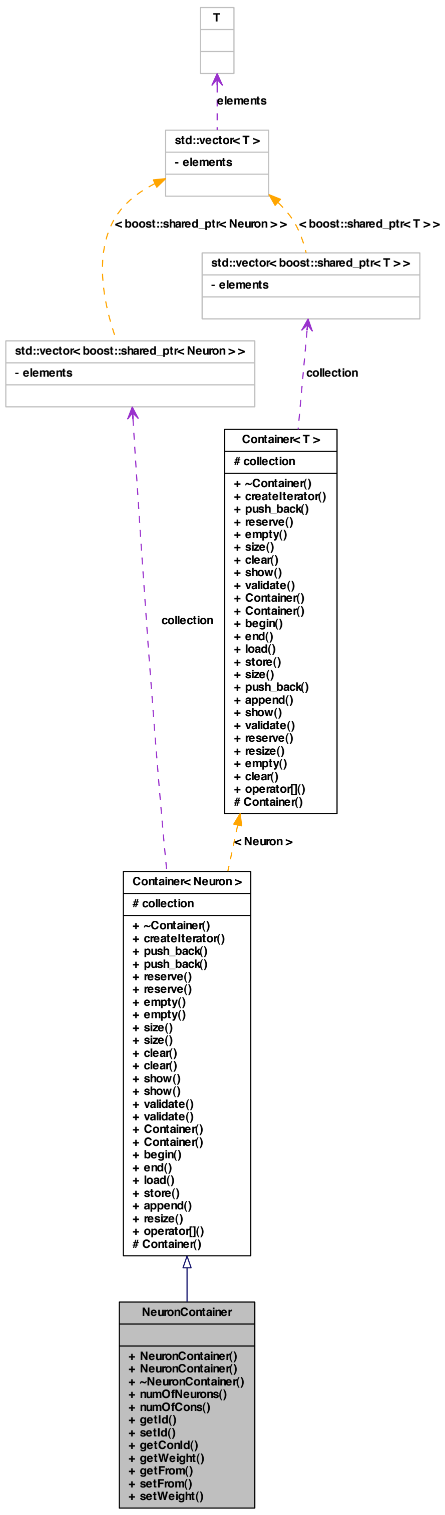
A vector of neurons.

```
#include <NeuronContainer.h>
```

Inheritance diagram for NeuronContainer:



Collaboration diagram for NeuronContainer:



Public Types

- typedef NeuronContainer_iterator iterator
- typedef NeuronContainer_const_iterator const_iterator
- typedef boost::shared_ptr< Neuron > value_type
- typedef value_type const & const_reference

Public Member Functions

- NeuronContainer ()
- NeuronContainer (std::vector< NeuronPtr > neuronContainer)
- ~NeuronContainer ()
- int numOfNeurons ()
- std::vector< int > numOfCons ()
- std::vector< int > getId ()
- void setId (std::vector< int > nIds)
- std::vector< std::vector< int > > getConId ()
- std::vector< std::vector< double > > getWeight ()
- std::vector< NeuronContainer > getFrom ()
- void setFrom (std::vector< NeuronContainer > neuronArray)
- void setWeight (std::vector< std::vector< double > > value)

5.20.1 Detailed Description

A vector of neurons.

The vecNeuron class provides a simple class for a vector of neurons. It's named after the R equivalent Reference Class.

Definition at line 17 of file NeuronContainer.h.

5.20.2 Member Typedef Documentation

5.20.2.1 typedef NeuronContainer_const_iterator NeuronContainer::const_iterator

Reimplemented from Container< Neuron >.

Definition at line 23 of file NeuronContainer.h.

5.20.2.2 typedef value_type const& NeuronContainer::const_reference

Reimplemented from Container< Neuron >.

Definition at line 27 of file NeuronContainer.h.

5.20.2.3 typedef NeuronContainer_iterator NeuronContainer::iterator

Reimplemented from Container< Neuron >.

Definition at line 21 of file NeuronContainer.h.

5.20.2.4 typedef boost::shared_ptr<Neuron> NeuronContainer::value_type

Reimplemented from Container< Neuron >.

Definition at line 25 of file NeuronContainer.h.

5.20.3 Constructor & Destructor Documentation

5.20.3.1 NeuronContainer::NeuronContainer ( )

Definition at line 8 of file NeuronContainer.cpp.

```
{
}
```

5.20.3.2 NeuronContainer::NeuronContainer (std::vector< NeuronPtr > *neuronContainer*)

Definition at line 12 of file NeuronContainer.cpp.

```
                                                                          :
  Container<Neuron> (collection)
{
}
```

5.20.3.3 NeuronContainer::∼NeuronContainer ( )

Definition at line 17 of file NeuronContainer.cpp.

```
{
}
```

5.20.4 Member Function Documentation

5.20.4.1 std::vector< std::vector< int > > NeuronContainer::getConId ( )

Definition at line 60 of file NeuronContainer.cpp.

```
{
  std::vector < std::vector<int> > result;
  foreach(NeuronPtr itrNeuron, *this)
```

```
    {
      result.push_back( itrNeuron->getConId() );
    }
  return result;
}
```

5.20.4.2 std::vector<NeuronContainer> NeuronContainer::getFrom ( )

5.20.4.3 std::vector< int > NeuronContainer::getId ( )

Reimplemented in MLPneuronContainer.

Definition at line 39 of file NeuronContainer.cpp.

```
{
  std::vector<int> nIds;
  foreach(NeuronPtr itrNeuron, *this)
    {
      nIds.push_back( itrNeuron->getId() );
    }
  return nIds;
}
```

5.20.4.4 std::vector< std::vector< double > > NeuronContainer::getWeight ( )

Definition at line 71 of file NeuronContainer.cpp.

```
{
  std::vector < std::vector<double> > result;
  foreach(NeuronPtr itrNeuron, *this)
    {
      result.push_back( itrNeuron->getWeight() );
    }
  return result;
}
```

5.20.4.5 std::vector< int > NeuronContainer::numOfCons ( )

Definition at line 28 of file NeuronContainer.cpp.

```
{
  std::vector<int> nIds;
  foreach(NeuronPtr itrNeuron, *this)
    {
      nIds.push_back( itrNeuron->numOfCons() );
    }
  return nIds;
}
```

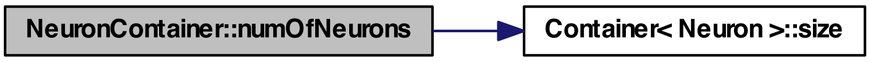
5.20.4.6 int NeuronContainer::numOfNeurons ( )

Definition at line 22 of file NeuronContainer.cpp.

References Container< Neuron >::size().

```
{
  size();
}
```

Here is the call graph for this function:



5.20.4.7 void NeuronContainer::setFrom (std::vector< NeuronContainer > *neuronArray*)

Definition at line 83 of file NeuronContainer.cpp.

```
{
  std::vector<NeuronContainer>::iterator itrArray(neuronArray.begin());
foreach(NeuronPtr itrNeuron, *this)
  {
    itrNeuron->setFrom(*itrArray);
    itrArray++;
  }
}
```

5.20.4.8 void NeuronContainer::setId (std::vector< int > *nIds*)

Definition at line 50 of file NeuronContainer.cpp.

```
{
  std::vector<int>::iterator itrId(nIds.begin());
foreach(NeuronPtr itrNeuron, *this)
  {
    itrNeuron->setId(*itrId);
  }
}
```

5.20.4.9 void NeuronContainer::setWeight (std::vector< std::vector< double > > *value*)

Definition at line 94 of file NeuronContainer.cpp.

```
{
  std::vector<std::vector<double> >::iterator itrValue(value.begin());
foreach(NeuronPtr itrNeuron, *this)
  {
    itrNeuron->setWeight(*itrValue);
    itrValue++;
  }
}
```

The documentation for this class was generated from the following files:

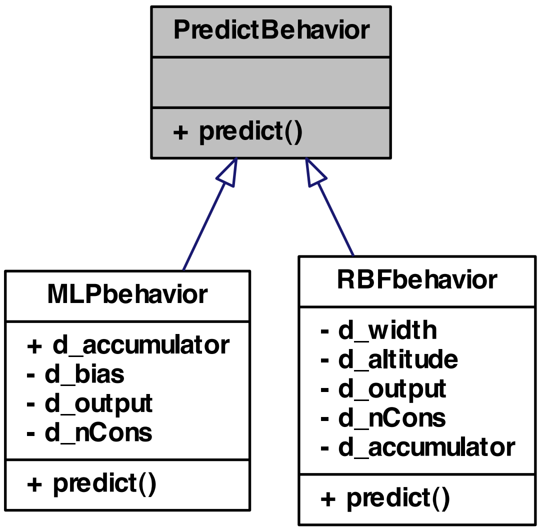
- pkg/AMORE/src/old/NeuronContainer.h
- pkg/AMORE/src/old/NeuronContainer.cpp

5.21 PredictBehavior Class Reference

class PredictBehavior -

`#include <PredictBehavior.h>`

Inheritance diagram for PredictBehavior:



Public Member Functions

- void predict ()

5.21.1 Detailed Description

class PredictBehavior -

Definition at line 4 of file PredictBehavior.h.

5.21.2 Member Function Documentation

5.21.2.1 void PredictBehavior::predict ( )

Reimplemented in MLPbehavior, and RBFbehavior.

The documentation for this class was generated from the following file:

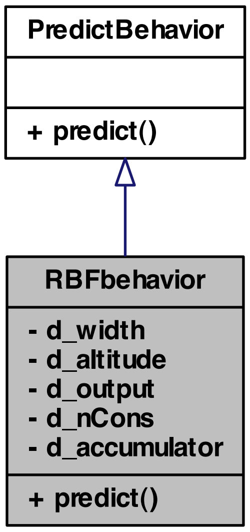
- pkg/AMORE/src/dia/PredictBehavior.h

5.22 RBFbehavior Class Reference

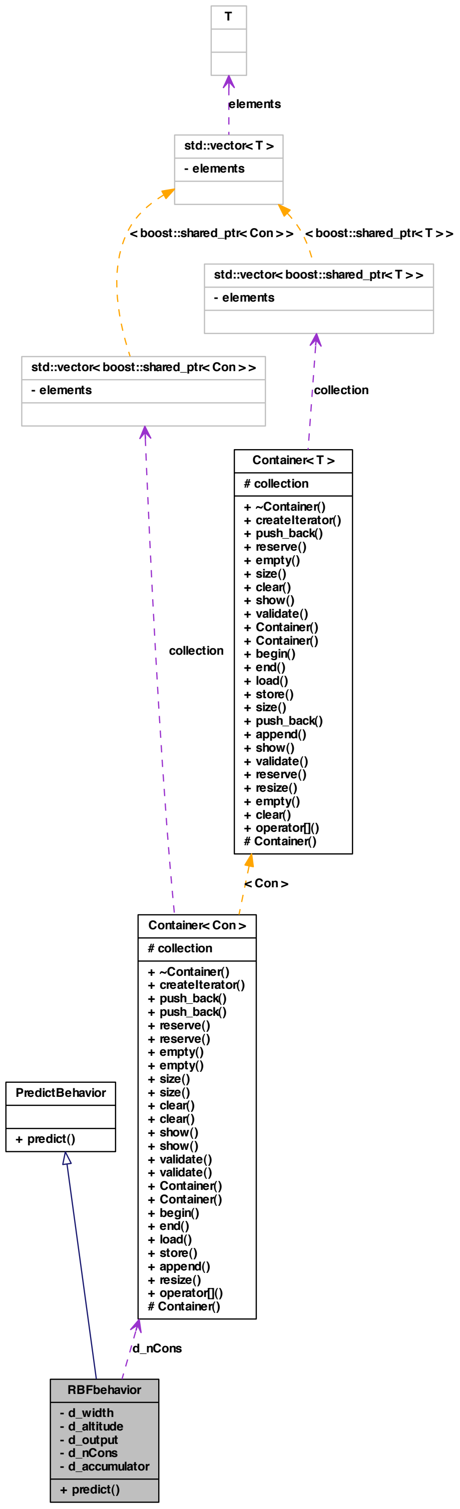
class RBFbehavior -

`#include <RBFbehavior.h>`

Inheritance diagram for RBFbehavior:



Collaboration diagram for RBFbehavior:



Public Member Functions

- void predict ()

Private Attributes

- double d_width
- double d_altitude
- double d_output
- Container< Con > d_nCons
- double d_accumulator

5.22.1 Detailed Description

class RBFbehavior -

Definition at line 5 of file RBFbehavior.h.

5.22.2 Member Function Documentation

5.22.2.1 void RBFbehavior::predict ( )

Reimplemented from PredictBehavior.

5.22.3 Member Data Documentation

5.22.3.1 double **RBFbehavior::d_accumulator** `[private]`

Definition at line 12 of file RBFbehavior.h.

5.22.3.2 double **RBFbehavior::d_altitude** `[private]`

Definition at line 9 of file RBFbehavior.h.

5.22.3.3 **Container<Con> RBFbehavior::d_nCons** `[private]`

Definition at line 11 of file RBFbehavior.h.

5.22.3.4 double **RBFbehavior::d_output** `[private]`

Definition at line 10 of file RBFbehavior.h.

5.22.3.5 double RBFbehavior::d_width [private]

Definition at line 8 of file RBFbehavior.h.

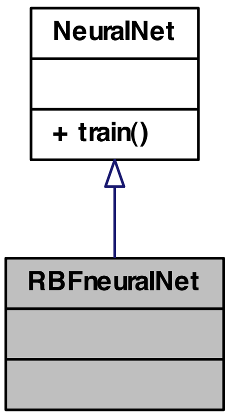
The documentation for this class was generated from the following file:

- pkg/AMORE/src/dia/RBFbehavior.h

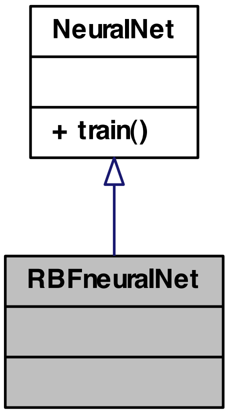
5.23 RBFneuralNet Class Reference

`#include <RBFneuralNet.h>`

Inheritance diagram for RBFneuralNet:



Collaboration diagram for RBFneuralNet:



5.23.1 Detailed Description

Definition at line 1 of file RBFneuralNet.h.

The documentation for this class was generated from the following file:

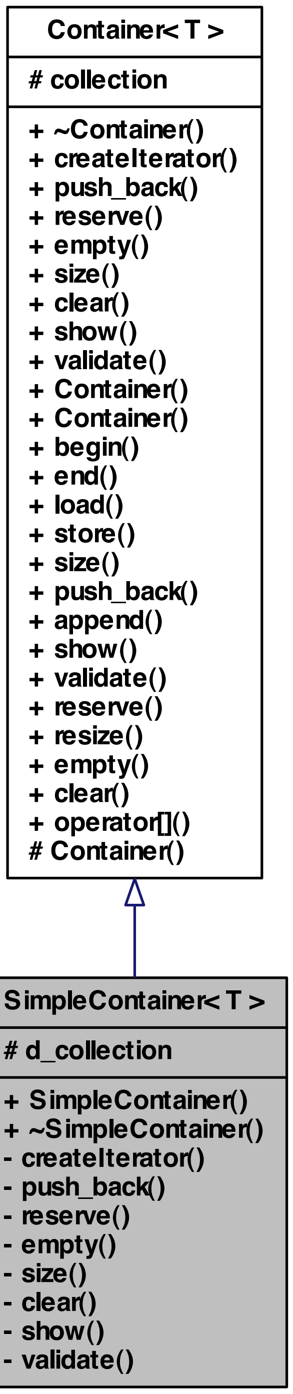
- pkg/AMORE/src/old/RBFneuralNet.h

5.24 SimpleContainer< T > Class Template Reference

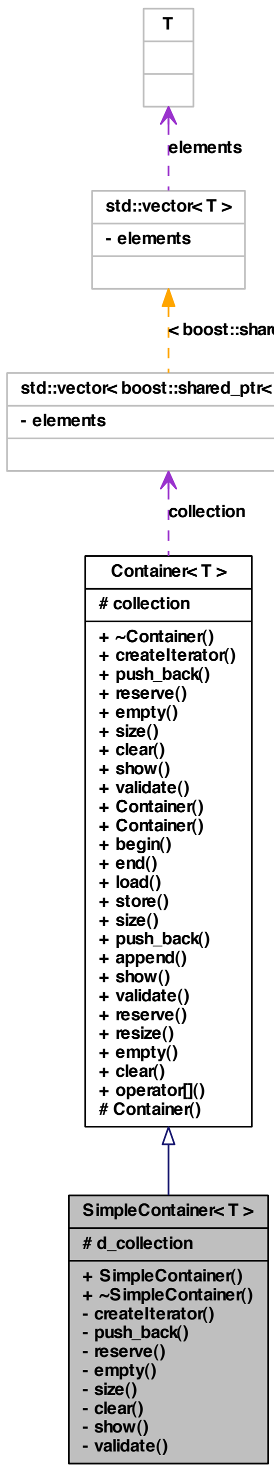
class SimpleContainer -

`#include <SimpleContainer.h>`

Inheritance diagram for SimpleContainer< T >:



Collaboration diagram for SimpleContainer< T >:



Public Member Functions

- SimpleContainer ()
- ∼SimpleContainer ()

Protected Attributes

- std::vector< T > d_collection

Private Member Functions

- boost::shared_ptr< Iterator< T > > createIterator ()
- void push_back (T const &const_reference)

  Append a shared_ptr at the end of collection.
- void reserve (int n)
- bool empty ()
- size_type size ()

  Returns the size or length of the vector.
- void clear ()
- void show ()

  Pretty print of the Container< T>
- bool validate ()

  Object validator.

Friends

- class SimpleContainerIterator< T >

5.24.1 Detailed Description

template<typename T>class SimpleContainer< T >

class SimpleContainer -

Definition at line 6 of file SimpleContainer.h.

5.24.2 Constructor & Destructor Documentation

5.24.2.1 template<typename T > SimpleContainer< T >::SimpleContainer ( )

5.24.2.2 template<typename T > SimpleContainer< T >::∼SimpleContainer ( )

5.24.3 Member Function Documentation

5.24.3.1 template<typename T > void SimpleContainer< T >::clear ( ) [private, virtual]

Implements Container< T >.

5.24.3.2 template<typename T > boost::shared_ptr< Iterator<T> > SimpleContainer< T >::createIterator ( ) [private, virtual]

Implements Container< T >.

5.24.3.3 template<typename T > bool SimpleContainer< T >::empty ( ) [private, virtual]

Implements Container< T >.

5.24.3.4 template<typename T > void SimpleContainer< T >::push_back (T const & *reference*) [private, virtual]

Append a shared_ptr at the end of collection.

Implements push_back for the Container class

Parameters

TsharedPtr	A shared_ptr pointer to be inserted at the end of collection

```
                //================
                //Usage example:
                //================
                // Data set up
                        Neuron N1, N2, N3;
                        Container<Con> conContainer;
                        std::vector<ConPtr> vc;
                        std::vector<int> result;
                        N1.setId(10);
                        N2.setId(20);
                        N3.setId(30);
                // Test
                        ConPtr ptCon( new Con(&N1, 1.13) );     // Create new Con
 and initialize ptCon
                        conContainer.push_back(ptCon);                         /
/ push_back
                        ptCon.reset(  new Con(&N2, 2.22) );             // create
 new Con and assign to ptCon
                        conContainer.push_back(ptCon);                         /
/ push_back
                        ptCon.reset(  new Con(&N3, 3.33) );             // create
 new Con and assign to ptCon
                        conContainer.push_back(ptCon);                         /
/ push_back

                        vc = conContainer.load();

                        result.push_back(vc.at(0)->getId());
                        result.push_back(vc.at(1)->getId());
                        result.push_back(vc.at(2)->getId());
        // After execution of this code, result contains a numeric vector with va
      lues 10, 20 and 30.
```

See also

C++ documentation for std::vector::push_back and the unit test files, e.g., runit.Cpp.Container.R, for usage examples.

Implements Container< T >.

5.24.3.5 template<typename T > void SimpleContainer< T >::reserve (int *n*) [private, virtual]

Implements Container< T >.

5.24.3.6 template<typename T > void SimpleContainer< T >::show ( ) [private, virtual]

Pretty print of the Container<T>

This method outputs in the R terminal the contents of Container::collection.

Returns

true in case everything works without throwing an exception

*

```
                //================
                //Usage example:
                //================
                // Data set up
                        ContainerNeuronPtr      neuronContainerPtr( new
      Container<Neuron>() );
                        ContainerConPtr conContainerPtr( new Container<Con>() );
                        ConPtr  ptC;
                        NeuronPtr ptN;
                        int ids[]= {10, 20, 30};
                        double weights[] = {1.13, 2.22, 3.33 };

                        for (int i=0; i<=2 ; i++) {                            /
      / Let's create a vector with three neurons
                                ptN.reset( new Neuron( ids[i] ) );
                                neuronContainerPtr->push_back(ptN);
                        }

                        for (int i=0; i<=2 ; i++) {                            /
      / and a vector with three connections
                                ptC.reset( new Con( neuronContainerPtr->load().at
      (i), weights[i]) );
                                conContainerPtr->push_back(ptC);
                        }

                // Test
                conContainerPtr->show() ;

        // The output at the R terminal would display:
        //
        //      # From:  10      Weight=         1.130000
        //      # From:  20      Weight=         2.220000
        //      # From:  30      Weight=         3.330000
        //
```

See also

The unit test files, e.g., runit.Cpp.Container.R, for usage examples.

Implements Container< T >.

5.24.3.7 template<typename T > size_type SimpleContainer< T >::size ( ) [private, virtual]

Returns the size or length of the vector.

This method returns the size of the vector. In the classes derived from Container<T> this is aliased as numOfCons, numOfNeurons and numOfLayers. The unit test files, e.g., runit.Cpp.Container.R, for usage examples.

Implements Container< T >.

5.24.3.8 template<typename T > bool SimpleContainer< T >::validate ( ) [private, virtual]

Object validator.

This method checks the object for internal coherence. This method calls the validate method for each element in collection,

See also

The unit test files, e.g., runit.Cpp.Container.R, for usage examples.

Implements Container< T >.

5.24.4 Friends And Related Function Documentation

5.24.4.1 template<typename T > friend class SimpleContainerIterator< T > [friend]

Definition at line 12 of file SimpleContainer.h.

5.24.5 Member Data Documentation

5.24.5.1 template<typename T > std::vector< T > SimpleContainer< T >::d_collection `[protected]`

Definition at line 9 of file SimpleContainer.h.

The documentation for this class was generated from the following file:

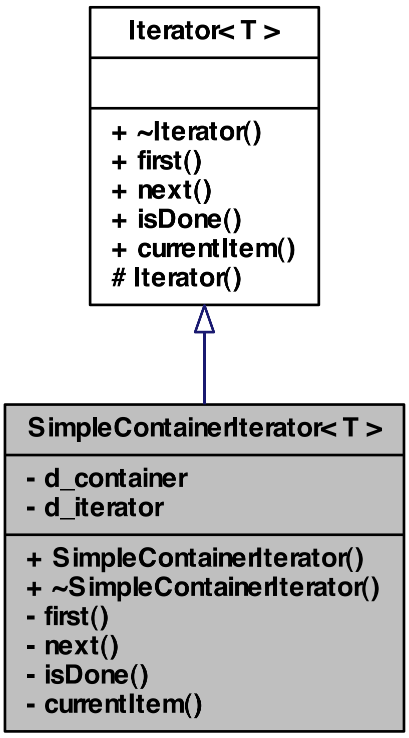
- pkg/AMORE/src/dia/SimpleContainer.h

5.25 SimpleContainerIterator< T > Class Template Reference

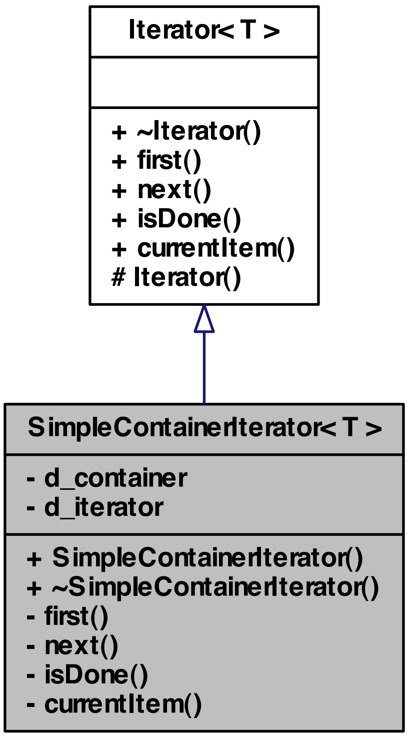
class SimpleContainerIterator -

`#include <SimpleContainerIterator.h>`

Inheritance diagram for SimpleContainerIterator< T >:



Collaboration diagram for SimpleContainerIterator< T >:



Public Member Functions

- SimpleContainerIterator ()
- ∼SimpleContainerIterator ()

Private Member Functions

- void first ()
- void next ()
- bool isDone ()
- T currentItem ()

Private Attributes

- Container< T > ∗ d_container
- std::vector< T >::iterator d_iterator

Friends

- class SimpleContainer< T >

5.25.1 Detailed Description

template<typename T>class SimpleContainerIterator< T >

class SimpleContainerIterator -

Definition at line 6 of file SimpleContainerIterator.h.

5.25.2 Constructor & Destructor Documentation

5.25.2.1 template<typename T > SimpleContainerIterator< T >::SimpleContainerIterator ( )

5.25.2.2 template<typename T > SimpleContainerIterator< T >::∼SimpleContainerIterator ( )

5.25.3 Member Function Documentation

5.25.3.1 template<typename T > T SimpleContainerIterator< T >::currentItem ( ) `[private, virtual]`

Implements Iterator< T >.

5.25.3.2 template<typename T > void SimpleContainerIterator< T >::first ( ) `[private, virtual]`

Implements Iterator< T >.

5.25.3.3 template<typename T > bool SimpleContainerIterator< T >::isDone ( ) `[private, virtual]`

Implements Iterator< T >.

5.25.3.4 template< typename T > void SimpleContainerIterator< T >::next ( ) [private, virtual]

Implements Iterator< T >.

5.25.4 Friends And Related Function Documentation

5.25.4.1 template< typename T > friend class SimpleContainer< T > [friend]

Definition at line 13 of file SimpleContainerIterator.h.

5.25.5 Member Data Documentation

5.25.5.1 template< typename T > Container<T>* SimpleContainerIterator< T >::d_container [private]

Definition at line 9 of file SimpleContainerIterator.h.

5.25.5.2 template< typename T > std::vector<T>::iterator SimpleContainerIterator< T >::d_iterator [private]

Definition at line 10 of file SimpleContainerIterator.h.

The documentation for this class was generated from the following file:

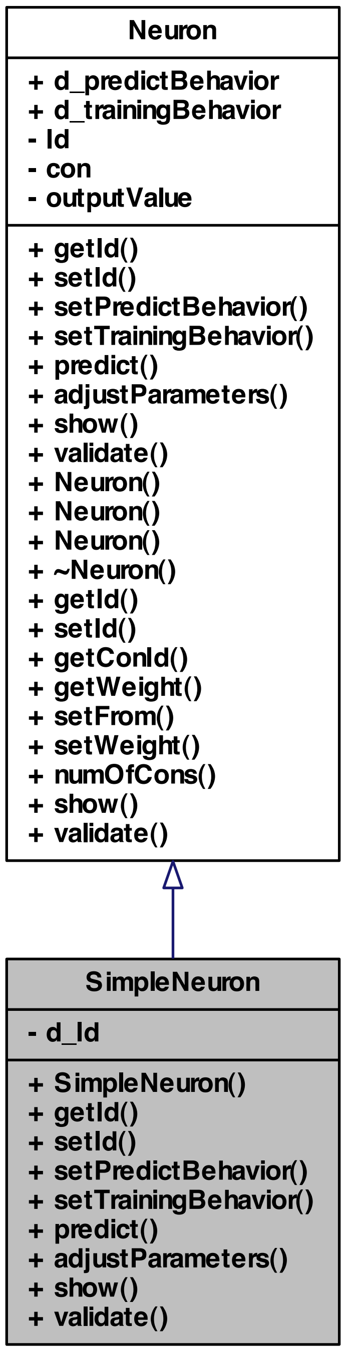
- pkg/AMORE/src/dia/SimpleContainerIterator.h

5.26 SimpleNeuron Class Reference

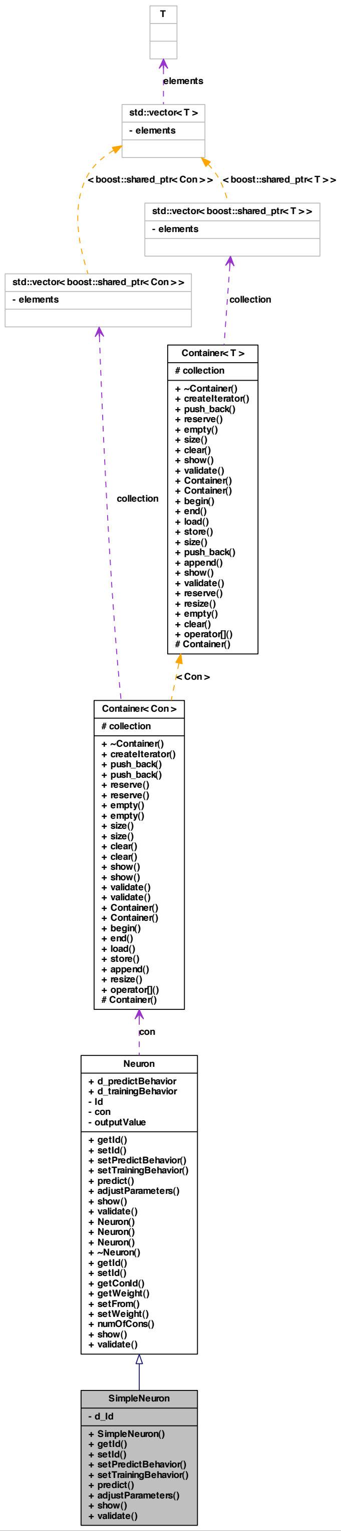
class SimpleNeuron -

`#include <SimpleNeuron.h>`

Inheritance diagram for SimpleNeuron:



Collaboration diagram for SimpleNeuron:



Public Member Functions

- SimpleNeuron ()
- Handler getId ()
- void setId (Handler Id)
- void setPredictBehavior (PredictBehavior &predictBehavior)
- void setTrainingBehavior (TrainingBehavior &trainingBehavior)
- void predict ()
- void adjustParameters ()
- void show ()
- bool validate ()

Private Attributes

- int d_Id

5.26.1 Detailed Description

class SimpleNeuron -

Definition at line 5 of file SimpleNeuron.h.

5.26.2 Constructor & Destructor Documentation

5.26.2.1 SimpleNeuron::SimpleNeuron ( )

5.26.3 Member Function Documentation

5.26.3.1 void SimpleNeuron::adjustParameters ( ) `[virtual]`

Implements Neuron.

5.26.3.2 Handler SimpleNeuron::getId ( ) `[virtual]`

Implements Neuron.

5.26.3.3 void SimpleNeuron::predict ( ) `[virtual]`

Implements Neuron.

5.26.3.4 void SimpleNeuron::setId (Handler *Id*) `[virtual]`

Implements Neuron.

5.26.3.5 void SimpleNeuron::setPredictBehavior (**PredictBehavior** & *predictBehavior*) `[virtual]`

Implements Neuron.

5.26.3.6 void SimpleNeuron::setTrainingBehavior (**TrainingBehavior** & *trainingBehavior*) `[virtual]`

Implements Neuron.

5.26.3.7 void SimpleNeuron::show ( ) `[virtual]`

Implements Neuron.

5.26.3.8 bool SimpleNeuron::validate ( ) `[virtual]`

Implements Neuron.

5.26.4 Member Data Documentation

5.26.4.1 int **SimpleNeuron::d_Id** `[private]`

Definition at line 8 of file SimpleNeuron.h.

The documentation for this class was generated from the following file:

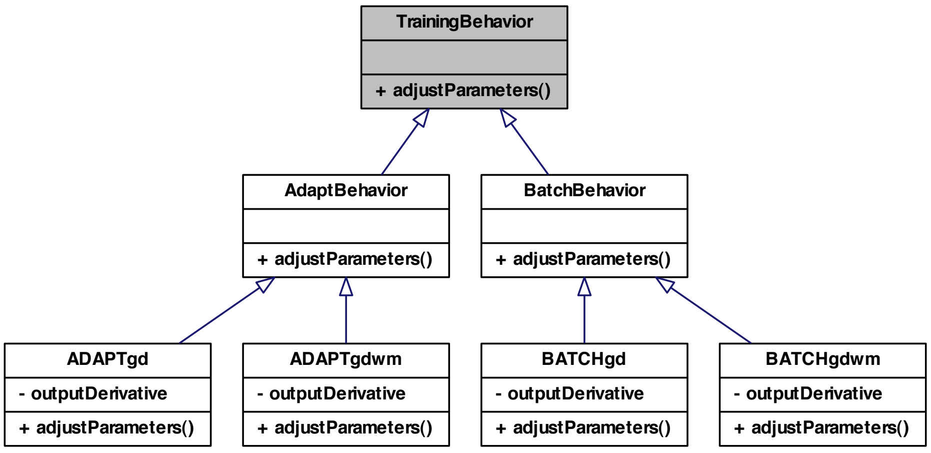
- pkg/AMORE/src/dia/SimpleNeuron.h

5.27 TrainingBehavior Class Reference

class TrainingBehavior -

`#include <TrainingBehavior.h>`

Inheritance diagram for TrainingBehavior:



Public Member Functions

- void adjustParameters ()

5.27.1 Detailed Description

class TrainingBehavior -

Definition at line 4 of file TrainingBehavior.h.

5.27.2 Member Function Documentation

5.27.2.1 void TrainingBehavior::adjustParameters ( )

Reimplemented in AdaptBehavior, ADAPTgd, ADAPTgdwm, BatchBehavior, BATCHgd, and BATCHgdwm.

The documentation for this class was generated from the following file:

- pkg/AMORE/src/dia/TrainingBehavior.h

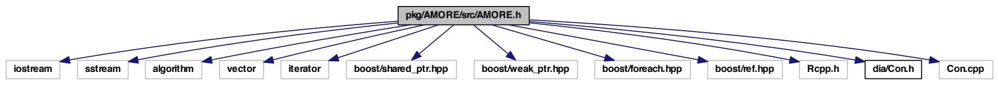
Chapter 6

File Documentation

6.1 pkg/AMORE/src/AMORE.h File Reference

```
#include <iostream>
#include <sstream>
#include <algorithm>
#include <vector>
#include <iterator>
#include <boost/shared_ptr.hpp>
#include <boost/weak_ptr.hpp>
#include <boost/foreach.hpp>
#include <boost/ref.hpp>
#include <Rcpp.h>
#include "dia/Con.h"
#include "Con.cpp"
```

Include dependency graph for AMORE.h:



Defines

- #define foreach BOOST_FOREACH

- #define size_type unsigned int

Typedefs

- typedef int Handler
- typedef boost::reference_wrapper< PredictBehavior > PredictBehaviorRef
- typedef boost::reference_wrapper< TrainingBehavior > TrainingBehaviorRef
- typedef boost::reference_wrapper< Neuron > NeuronRef
- typedef boost::shared_ptr< Neuron > NeuronPtr
- typedef boost::shared_ptr< Con > ConPtr
- typedef boost::shared_ptr< IteratorInterface< Neuron > > NeuronIteratorInterfacePtr
- typedef boost::shared_ptr< IteratorInterface< Con > > ConIteratorInterfacePtr
- typedef Container< Con > ConContainer
- typedef Container< Neuron > NeuronContainer

6.1.1 Define Documentation

6.1.1.1 #define foreach BOOST_FOREACH

Definition at line 53 of file AMORE.h.

6.1.1.2 #define size_type unsigned int

Definition at line 56 of file AMORE.h.

6.1.2 Typedef Documentation

6.1.2.1 typedef **Container**<**Con**> **ConContainer**

Definition at line 79 of file AMORE.h.

6.1.2.2 typedef boost::shared_ptr< IteratorInterface<**Con**> > **ConIteratorInterfacePtr**

Definition at line 66 of file AMORE.h.

6.1.2.3 typedef boost::shared_ptr<**Con**> **ConPtr**

Definition at line 64 of file AMORE.h.

6.1.2.4 typedef int **Handler**

Definition at line 59 of file AMORE.h.

6.1.2.5 typedef Container< Neuron > NeuronContainer

Definition at line 80 of file AMORE.h.

6.1.2.6 typedef boost::shared_ptr< IteratorInterface< Neuron > > NeuronIteratorInterfacePtr

Definition at line 65 of file AMORE.h.

6.1.2.7 typedef boost::shared_ptr< Neuron > NeuronPtr

Definition at line 63 of file AMORE.h.

6.1.2.8 typedef boost::reference_wrapper< Neuron > NeuronRef

Definition at line 62 of file AMORE.h.

6.1.2.9 typedef boost::reference_wrapper< PredictBehavior > PredictBehaviorRef

Definition at line 60 of file AMORE.h.

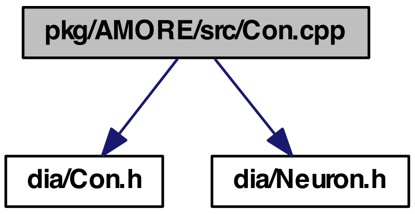
6.1.2.10 typedef boost::reference_wrapper< TrainingBehavior > TrainingBehaviorRef

Definition at line 61 of file AMORE.h.

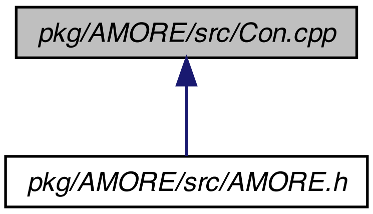
6.2 pkg/AMORE/src/Con.cpp File Reference

```
#include "dia/Con.h"
#include "dia/Neuron.h"
```

Include dependency graph for Con.cpp:



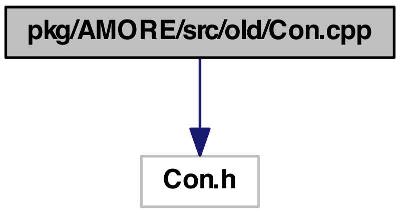
This graph shows which files directly or indirectly include this file:



6.3 pkg/AMORE/src/old/Con.cpp File Reference

```
#include "Con.h"
```

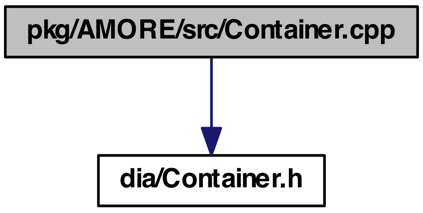
Include dependency graph for Con.cpp:



6.4 pkg/AMORE/src/Container.cpp File Reference

```
#include "dia/Container.h"
```

Include dependency graph for Container.cpp:

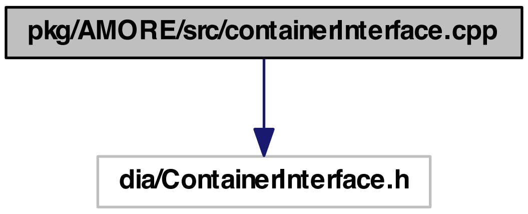


6.5 pkg/AMORE/src/old/Container.cpp File Reference

6.6 pkg/AMORE/src/containerInterface.cpp File Reference

```
#include "dia/ContainerInterface.h"
```

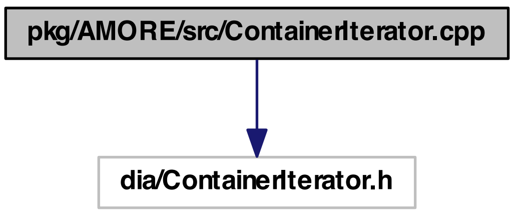
Include dependency graph for containerInterface.cpp:



6.7 pkg/AMORE/src/ContainerIterator.cpp File Reference

```
#include "dia/ContainerIterator.h"
```

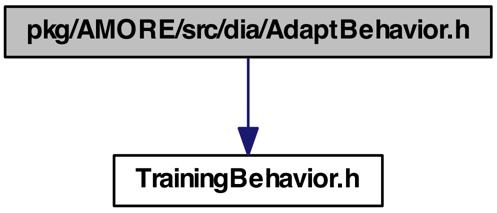
Include dependency graph for ContainerIterator.cpp:



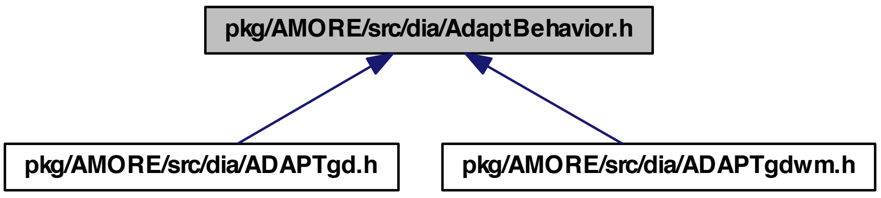
6.8 pkg/AMORE/src/dia/AdaptBehavior.h File Reference

```
#include "TrainingBehavior.h"
```

Include dependency graph for AdaptBehavior.h:



This graph shows which files directly or indirectly include this file:


pkg/AMORE/src/dia/AdaptBehavior.h
pkg/AMORE/src/dia/ADAPTgd.h
pkg/AMORE/src/dia/ADAPTgdwm.h

Classes

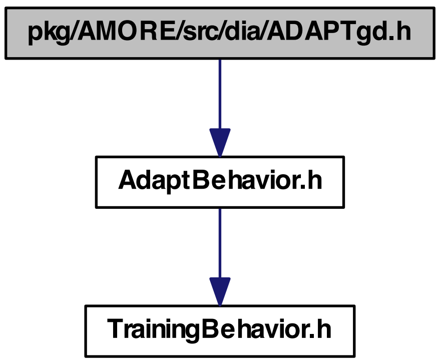
- class AdaptBehavior

    class AdaptBehavior -

6.9 pkg/AMORE/src/dia/ADAPTgd.h File Reference

```
#include "AdaptBehavior.h"
```

Include dependency graph for ADAPTgd.h:



Classes

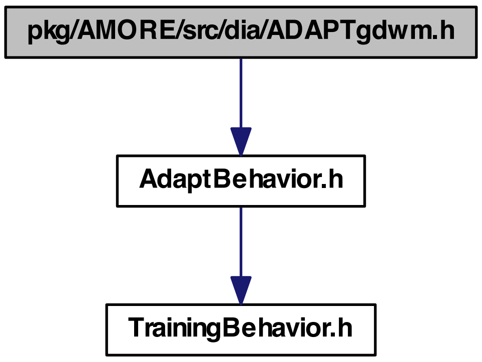
- class ADAPTgd

class ADAPTgd -

6.10 pkg/AMORE/src/dia/ADAPTgdwm.h File Reference

```
#include "AdaptBehavior.h"
```

Include dependency graph for ADAPTgdwm.h:



Classes

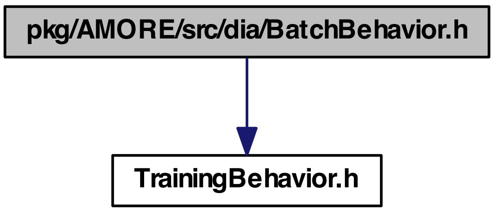
- class ADAPTgdwm

  class ADAPTgdwm -

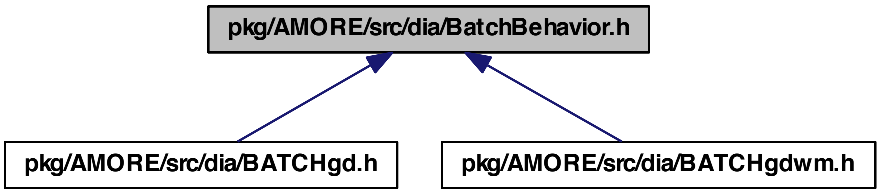
6.11 pkg/AMORE/src/dia/BatchBehavior.h File Reference

```
#include "TrainingBehavior.h"
```

Include dependency graph for BatchBehavior.h:



This graph shows which files directly or indirectly include this file:


pkg/AMORE/src/dia/BatchBehavior.h
pkg/AMORE/src/dia/BATCHgd.h
pkg/AMORE/src/dia/BATCHgdwm.h

Classes

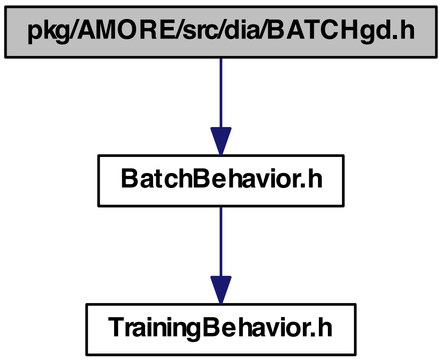
- class BatchBehavior

    class BatchBehavior -

6.12 pkg/AMORE/src/dia/BATCHgd.h File Reference

```
#include "BatchBehavior.h"
```

Include dependency graph for BATCHgd.h:



Classes

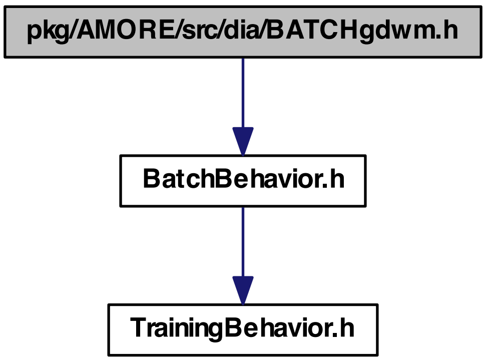
- class BATCHgd

  class BATCHgd -

6.13 pkg/AMORE/src/dia/BATCHgdwm.h File Reference

```
#include "BatchBehavior.h"
```

Include dependency graph for BATCHgdwm.h:



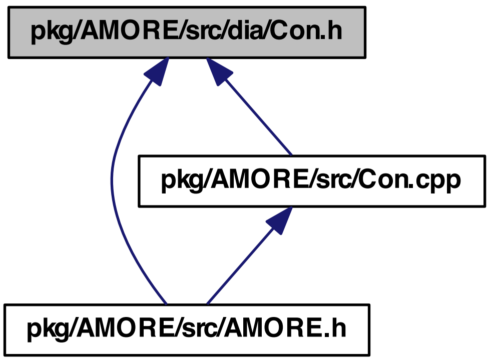
Classes

- class BATCHgdwm

  class BATCHgdwm -

6.14 pkg/AMORE/src/dia/Con.h File Reference

This graph shows which files directly or indirectly include this file:



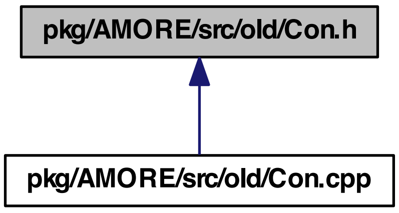
Classes

- class Con

    class Con -

6.15 pkg/AMORE/src/old/Con.h File Reference

This graph shows which files directly or indirectly include this file:



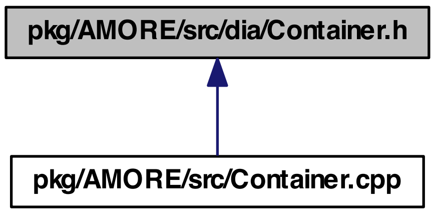
Classes

- class Con

    class Con -

6.16 pkg/AMORE/src/dia/Container.h File Reference

This graph shows which files directly or indirectly include this file:



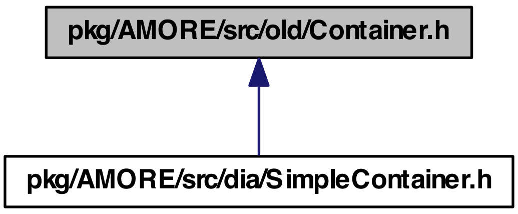
Classes

- class Container$<$ T $>$

    class Container -

6.17 pkg/AMORE/src/old/Container.h File Reference

This graph shows which files directly or indirectly include this file:


pkg/AMORE/src/old/Container.h
pkg/AMORE/src/dia/SimpleContainer.h

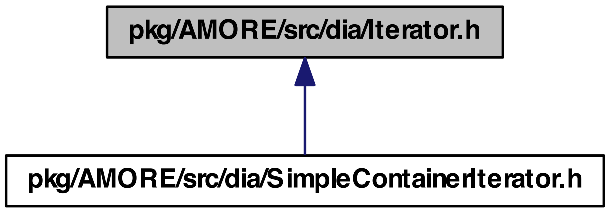
Classes

- class Container< T >

  class Container -

6.18 pkg/AMORE/src/dia/Iterator.h File Reference

This graph shows which files directly or indirectly include this file:


pkg/AMORE/src/dia/Iterator.h
pkg/AMORE/src/dia/SimpleContainerIterator.h

Classes

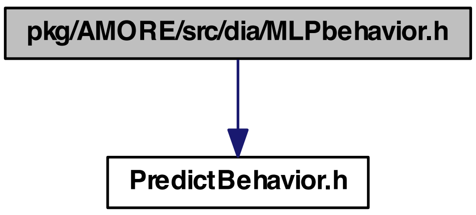
- class Iterator< T >

class Iterator -

6.19 pkg/AMORE/src/dia/MLPbehavior.h File Reference

```
#include "PredictBehavior.h"
```

Include dependency graph for MLPbehavior.h:



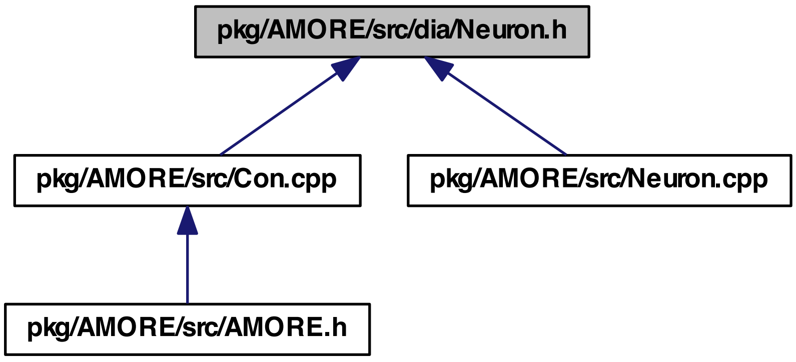
Classes

- class MLPbehavior

  class MLPbehavior -

6.20 pkg/AMORE/src/dia/Neuron.h File Reference

This graph shows which files directly or indirectly include this file:



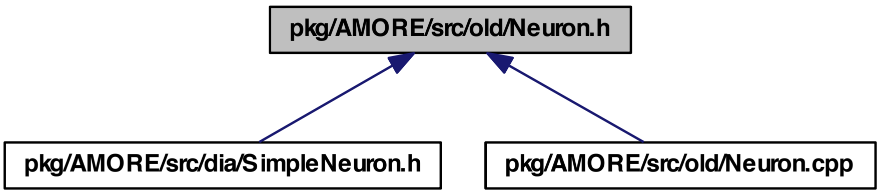
Classes

- class Neuron

    class Neuron -

6.21 pkg/AMORE/src/old/Neuron.h File Reference

This graph shows which files directly or indirectly include this file:


pkg/AMORE/src/old/Neuron.h
pkg/AMORE/src/dia/SimpleNeuron.h
pkg/AMORE/src/old/Neuron.cpp

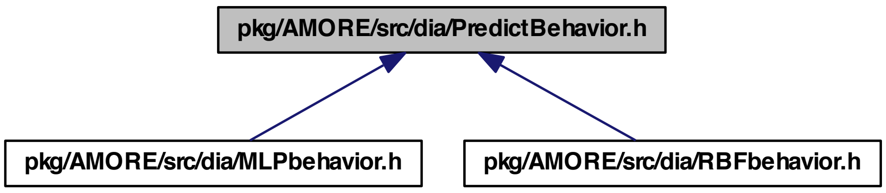
Classes

- class Neuron

    class Neuron -

6.22 pkg/AMORE/src/dia/PredictBehavior.h File Reference

This graph shows which files directly or indirectly include this file:


pkg/AMORE/src/dia/PredictBehavior.h
pkg/AMORE/src/dia/MLPbehavior.h
pkg/AMORE/src/dia/RBFbehavior.h

Classes

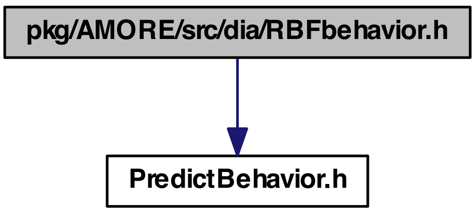
- class PredictBehavior

    class PredictBehavior -

6.23 pkg/AMORE/src/dia/RBFbehavior.h File Reference

```
#include "PredictBehavior.h"
```

Include dependency graph for RBFbehavior.h:



Classes

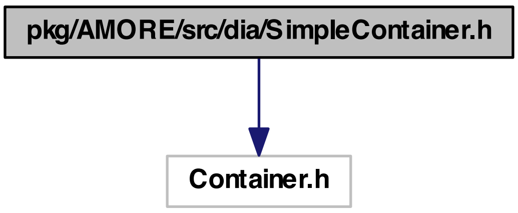
- class RBFbehavior

  class RBFbehavior -

6.24 pkg/AMORE/src/dia/SimpleContainer.h File Reference

```
#include "Container.h"
```

Include dependency graph for SimpleContainer.h:



Classes

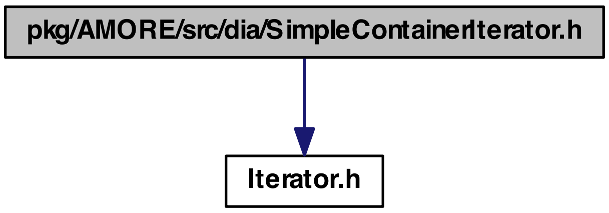
- class SimpleContainer< T >

  class SimpleContainer -

6.25 pkg/AMORE/src/dia/SimpleContainerIterator.h File Reference

```
#include "Iterator.h"
```

Include dependency graph for SimpleContainerIterator.h:



Classes

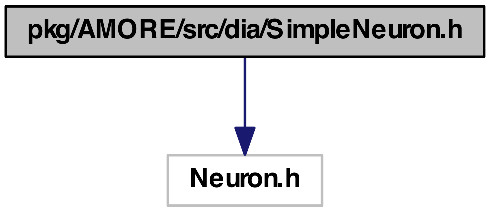
- class SimpleContainerIterator< T >

  class SimpleContainerIterator -

6.26 pkg/AMORE/src/dia/SimpleNeuron.h File Reference

```
#include "Neuron.h"
```

Include dependency graph for SimpleNeuron.h:



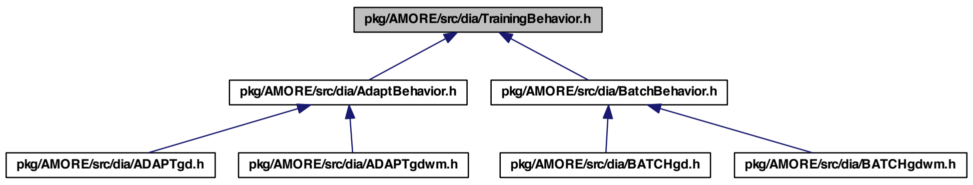
Classes

- class SimpleNeuron

    class SimpleNeuron -

6.27 pkg/AMORE/src/dia/TrainingBehavior.h File Reference

This graph shows which files directly or indirectly include this file:


pkg/AMORE/src/dia/TrainingBehavior.h
pkg/AMORE/src/dia/AdaptBehavior.h
pkg/AMORE/src/dia/BatchBehavior.h
pkg/AMORE/src/dia/ADAPTgd.h
pkg/AMORE/src/dia/ADAPTgdwm.h
pkg/AMORE/src/dia/BATCHgd.h
pkg/AMORE/src/dia/BATCHgdwm.h

Classes

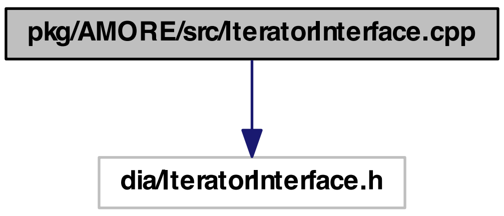
- class TrainingBehavior

    class TrainingBehavior -

6.28 pkg/AMORE/src/IteratorInterface.cpp File Reference

```
#include "dia/IteratorInterface.h"
```

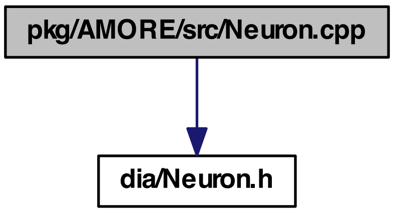
Include dependency graph for IteratorInterface.cpp:



6.29 pkg/AMORE/src/Neuron.cpp File Reference

```
#include "dia/Neuron.h"
```

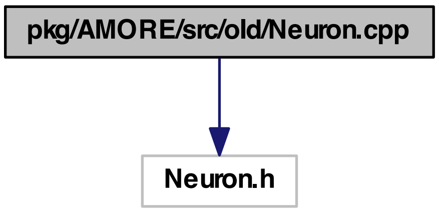
Include dependency graph for Neuron.cpp:



6.30 pkg/AMORE/src/old/Neuron.cpp File Reference

```
#include "Neuron.h"
```

Include dependency graph for Neuron.cpp:



6.31 pkg/AMORE/src/old/ConContainer.cpp File Reference

Classes

- struct CompareId

6.32 pkg/AMORE/src/old/ConContainer.h File Reference

Classes

- class ConContainer

  A vector of connections.

6.33 pkg/AMORE/src/old/MLPlayer.h File Reference

Classes

- class MLPlayer

6.34 pkg/AMORE/src/old/MLPlayerContainer.h File Reference

Classes

- class MLPlayerContainer

6.35 pkg/AMORE/src/old/MLPneuralNet.h File Reference

Classes

- class MLPneuralNet

6.36 pkg/AMORE/src/old/MLPneuralNetFactory.cpp File Reference

Functions

- MLPneuralNet CreateMLPneuralNet (std::vector< int > numberOfNeuronsPerLayer)

6.36.1 Function Documentation

6.36.1.1 **MLPneuralNet** CreateMLPneuralNet (std::vector< int > *numberOfNeuronsPerLayer*)

Definition at line 2 of file MLPneuralNetFactory.cpp.

```
{

  net = new MLPNeuralNet();

  MLPlayerPtr mlpLayerPtr;

  std::vector<int> idx;

foreach (int n, numberOfNeuronsPerLayer)
  {
    for (int i=1; i<=n; ++i)
      {
        idx.push_back(i);
      }
    mlpLayerPtr.reset(new MLPlayer( idx ) );
    net.nLayers.push_back(mlpLayerPtr);
  }



for (int i=1; i<=; ++i)
  {

    mlpPtr->buildAndAppend();

  }

}
```

6.37 pkg/AMORE/src/old/MLPneuron.h File Reference

Classes

- class MLPneuron

6.38 pkg/AMORE/src/old/MLPneuronContainer.h File Reference

Classes

- class MLPneuronContainer

  A vector of connections.

6.39 pkg/AMORE/src/old/NeuralNet.h File Reference

Classes

- class NeuralNet

6.40 pkg/AMORE/src/old/NeuronContainer.cpp File Reference

6.41 pkg/AMORE/src/old/NeuronContainer.h File Reference

Classes

- class NeuronContainer

  A vector of neurons.

6.42 pkg/AMORE/src/old/RBFneuralNet.h File Reference

Classes

- class RBFneuralNet

Index