AMORE++

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

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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

Todo List

Member Neuron::outputValue restore vecCon<Con> listCon;

Chapter 3

Class Index

3.1 Class Hierarchy

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

Chapter 4

Class Index

4.1 Class List

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

Chapter 5

File Index

5.1 File List

Here is a list of all files with brief descriptions:

Chapter 6

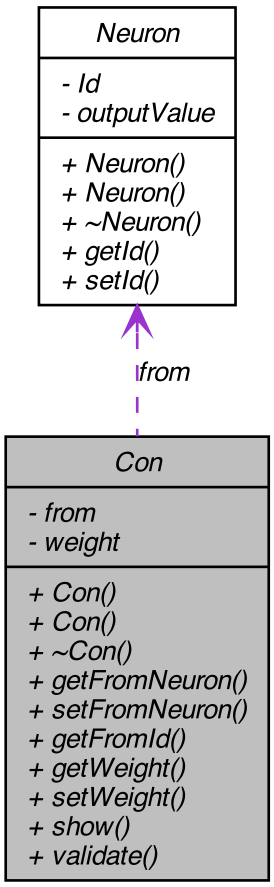
Class Documentation

6.1 Con Class Reference

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

```
#include <Con.h>
```

Collaboration diagram for Con:



Public Member Functions

- Con ()

  Default Constructor.
- Con (Neuron ∗f, double w)

  Constructor.
- ∼Con ()

  Default Destructor.
- Neuron ∗ getFromNeuron ()

  from field accessor.

- void setFromNeuron (Neuron ∗f)

    from field accessor.
- int getFromId ()

    A getter of the Id of the Neuron pointed by the from field.
- double getWeight ()

    weight field accessor.
- void setWeight (double w)

    weight field accessor.
- bool show ()

    Pretty print of the Con information.
- bool validate ()

    Object validator.

Private Attributes

- Neuron ∗ from

    A pointer to the Neuron used as input during simulation or training.
- double weight

    A double variable that contains the weight of the connection.

6.1.1 Detailed Description

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 the Neuron used as the from field and the weight used to propagate the value of that Neuron object.

Definition at line 16 of file Con.h.

6.1.2 Constructor & Destructor Documentation

6.1.2.1 Con::Con ( )

Default Constructor.

Definition at line 18 of file Con.cpp.

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

6.1.2.2 Con::Con (Neuron ∗ *f*, double *w*)

Constructor.

Definition at line 27 of file Con.cpp.

```
: from(f), weight(w) {};
```

6.1.2.3 Con::∼Con ( )

Default Destructor.

Definition at line 32 of file Con.cpp.

```
{};
```

6.1.3 Member Function Documentation

6.1.3.1 int Con::getFromId ( )

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
            Con myCon;
            Neuron MyNeuron;
            MyNeuron.setId(16);
            myCon.setFromNeuron(&MyNeuron);

    // Test
            int result= myCon.getFromId();
    // After execution of the code shown above, MyNeuron::Id is set to the in
  teger value 16 and, thus, result is equal to 16.
```

See also

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

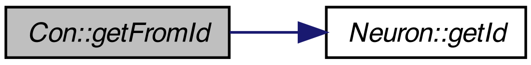
Definition at line 97 of file Con.cpp.

References from, and Neuron::getId().

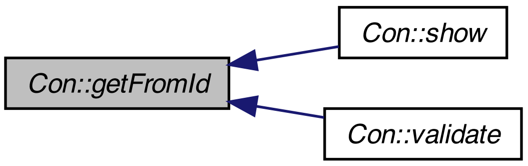
Referenced by show(), and validate().

```
                    {
        return(from->getId() );
}
```

Here is the call graph for this function:



Here is the caller graph for this function:



6.1.3.2 Neuron ∗ Con::getFromNeuron ( )

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
        Con myCon;
        Neuron MyNeuron;
        Neuron* ptNeuron;
        MyNeuron.setId(1);
        myCon.setFromNeuron(&MyNeuron);

//Test
        ptNeuron = myCon.getFromNeuron();
        int result= ptNeuron->getId();
// Now, ptNeuron is pointing at MyNeuron and, thus, result is equal to 1.
```

See also

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

Definition at line 59 of file Con.cpp.

References from.

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

6.1.3.3 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
        Con myCon;
        Neuron MyNeuron;
        MyNeuron.setId(16);
        myCon.setFromNeuron(&MyNeuron);
        myCon.setWeight(12.4);
        double result1= myCon.getWeight();
// Test
        myCon.setWeight(2.2);
        double result2= myCon.getWeight();
// Now, result1 is equal to 12.4 and result2 is equal to 2.2.
```

See also

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

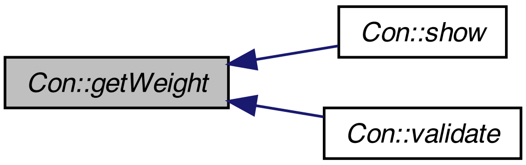
Definition at line 127 of file Con.cpp.

References weight.

Referenced by show(), and validate().

```
                        {
        return(weight);
}
```

Here is the caller graph for this function:



6.1.3.4 void Con::setFromNeuron (Neuron ∗ *f*)

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.

See also

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

Definition at line 70 of file Con.cpp.

References from.

```
                                              {
        from = f;
}
```

6.1.3.5 void Con::setWeight (double *w*)

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
                Con myCon;
                Neuron n;
                n.setId(16);
                myCon.setFromNeuron(&n);

        // Test
                myCon.setWeight(12.4);
                myCon.show();
        // Now, the output at the R terminal would show:
        //
        //  FROM=16             WEIGHT=12.4
        //
```

See also

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

Definition at line 159 of file Con.cpp.

References weight.

```
                                   {
        weight = w;
}
```

6.1.3.6 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

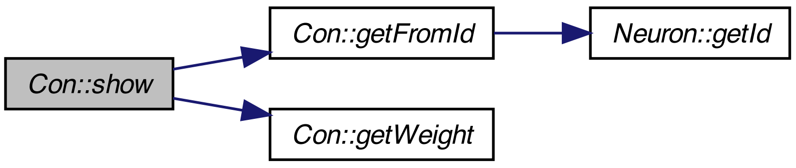
setWeight and the unit test files, e.g., runit.Cpp.Con.R, for usage examples.

Definition at line 171 of file Con.cpp.

References getFromId(), and getWeight().

```
                {
        Rprintf("From:\t %d \t Weight= \t %lf \n", getFromId() , getWeight());
        return(true);
}
```

Here is the call graph for this function:



6.1.3.7 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

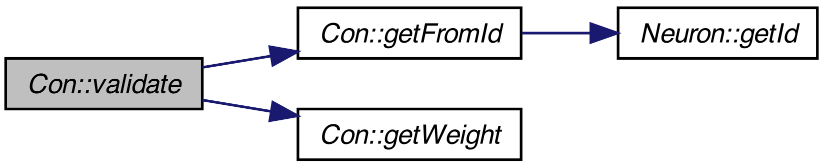
An	std::range error if weight or from are not finite.

Definition at line 185 of file Con.cpp.

References getFromId(), and getWeight().

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

Here is the call graph for this function:



6.1.4 Member Data Documentation

6.1.4.1 Neuron∗ Con::from [private]

A 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 21 of file Con.h.

Referenced by getFromId(), getFromNeuron(), and setFromNeuron().

6.1.4.2 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 26 of file Con.h.

Referenced by getWeight(), and setWeight().

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

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

6.2 Neuron Class Reference

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

```
#include <Neuron.h>
```

Public Member Functions

- Neuron ()
- Neuron (int Id)
- ∼Neuron ()
- int getId ()
- void setId (int id)

Private Attributes

- int Id

    An integer variable with the Neuron Id.
- double outputValue

    A vector of input connections.

6.2.1 Detailed Description

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 16 of file Neuron.h.

6.2.2 Constructor & Destructor Documentation

6.2.2.1 Neuron::Neuron ( )

Definition at line 14 of file Neuron.cpp.

```
{};
```

6.2.2.2 Neuron::Neuron (int *Id*)

Definition at line 15 of file Neuron.cpp.

```
: Id(Id), outputValue(0.0) {};
```

6.2.2.3 Neuron::∼Neuron ( )

Definition at line 16 of file Neuron.cpp.

```
{};
```

6.2.3 Member Function Documentation

6.2.3.1 int Neuron::getId ( )

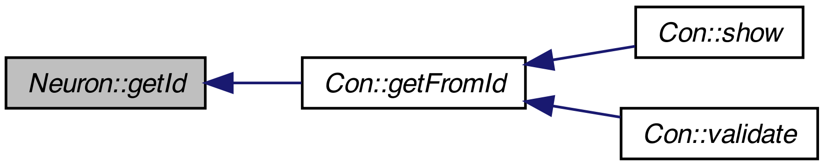
Definition at line 19 of file Neuron.cpp.

References Id.

Referenced by Con::getFromId().

```
                 {
        return Id;
}
```

Here is the caller graph for this function:



6.2.3.2 void Neuron::setId (int *id*)

Definition at line 23 of file Neuron.cpp.

References Id.

```
                         {
        Id=id;
}
```

6.2.4 Member Data Documentation

6.2.4.1 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 21 of file Neuron.h.

Referenced by getId(), and setId().

6.2.4.2 double Neuron::outputValue `[private]`

A vector of input connections.

Todo

restore vecCon<Con> listCon;

Definition at line 30 of file Neuron.h.

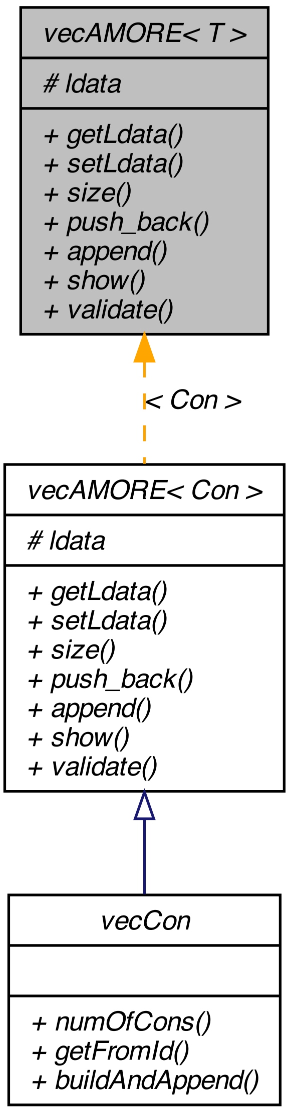
The documentation for this class was generated from the following files:

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

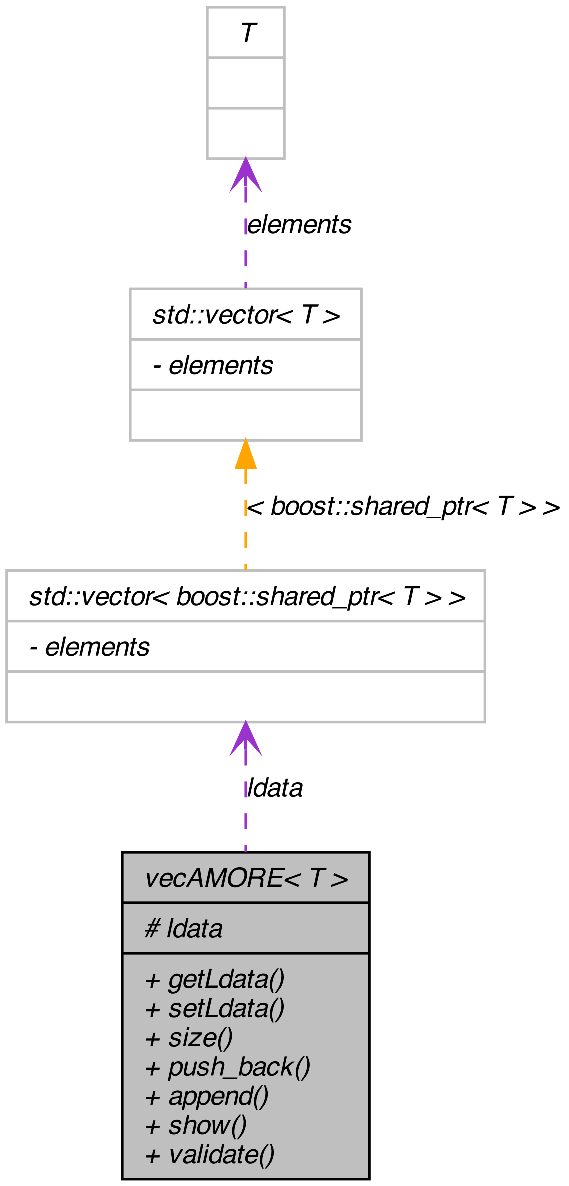
6.3 vecAMORE< T > Class Template Reference

`#include <vecAMORE.h>`

Inheritance diagram for vecAMORE< T >:



Collaboration diagram for vecAMORE< T >:



Public Member Functions

- std::vector< boost::shared_ptr< T > > getLdata ()

  ldata field accessor function
- void setLdata (typename std::vector< boost::shared_ptr< T > >)

  ldata field accessor function
- int size ()

  Returns the size or length of the vector.
- void push_back (boost::shared_ptr< T > element)

  Append a shared_ptr at the end of ldata.
- void append (vecAMORE< T > v)

  Appends a vecAMORE<T> object.
- bool show ()

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

  Object validator.

Protected Attributes

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

6.3.1 Detailed Description

template<typename T>class vecAMORE< T >

Definition at line 12 of file vecAMORE.h.

6.3.2 Member Function Documentation

6.3.2.1 template<typename T> void vecAMORE< T >::append (vecAMORE< T > *v*)

Appends a vecAMORE<T> object.

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

Parameters

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

See also

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

```
//================
//Usage example:
//================
  // Data set up
          Neuron N1, N2, N3, N4, N5, N6;
          vecAMORE<Con> vcA, vcB;
          std::vector<int> result;

          N1.setId(10);
          N2.setId(20);
          N3.setId(30);
          N4.setId(40);
          N5.setId(50);
          N6.setId(60);

  // Test
          ConSharedPtr ptCon( new Con(&N1, 1.13) );       // Create and sto
re in vcA three Cons
          vcA.push_back(ptCon);
          ptCon.reset( new Con(&N2, 2.22) );
          vcA.push_back(ptCon);
          ptCon.reset(  new Con(&N3, 3.33) );
          vcA.push_back(ptCon);

          ptCon.reset( new Con(&N4, 1.13) );      // Create and store in vc
B three more Cons
          vcB.push_back(ptCon);
          ptCon.reset( new Con(&N5, 2.22) );
          vcB.push_back(ptCon);
          ptCon.reset(  new Con(&N6, 3.33) );
          vcB.push_back(ptCon);

  // Append test
          vcA.append(vcB);
          vcA.validate();
          vcA.show() ;

  // After execution of the code above, the output at the R terminal would
display:
  // From:         10      Weight=         1.130000
  // From:         20      Weight=         2.220000
  // From:         30      Weight=         3.330000
  // From:         40      Weight=         1.130000
  // From:         50      Weight=         2.220000
  // From:         60      Weight=         3.330000
```

See also

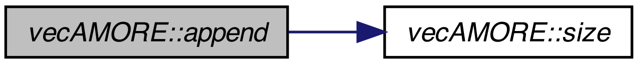
vecAMORE::setLdata , vecAMORE::push_back and the unit test files, e.g., runit.Cpp.vecAMORE.R, for usage examples.

Definition at line 133 of file vecAMORE.cpp.

References vecAMORE< T >::ldata, and vecAMORE< T >::size().

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

Here is the call graph for this function:



6.3.2.2 template<typename T > std::vector< boost::shared_ptr< T > > vecAMORE< T >::getLdata ( )

ldata field accessor function

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

Returns

The ldata vector.

```
        //================
        //Usage example:
        //================
                // Data set up
                        Neuron N1, N2, N3;
                        vecAMORE<Con> MyvecCon;
                        std::vector<int> result;
                        std::vector<ConSharedPtr> vcA, vcB;

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

                // Test
                        ConSharedPtr ptCon( new Con(&N1, 1.13) );       // Create
       new Con and initialize ptCon
                        vcA.push_back(ptCon);                                    /
      / push_back
                        ptCon.reset( new Con(&N2, 2.22) );               /
      / create new Con and assign to ptCon
                        vcA.push_back(ptCon);                                    /
      / push_back
                        ptCon.reset(  new Con(&N3, 3.33) );              /
      / create new Con and assign to ptCon
                        vcA.push_back(ptCon);                                    /
      / push_back

                        MyvecCon.setLdata(vcA);
                        vcB = MyvecCon.getLdata();

                        result.push_back(vcB.at(0)->getFromId());
                        result.push_back(vcB.at(1)->getFromId());
                        result.push_back(vcB.at(2)->getFromId());
                // After execution of the code shown above, result is an integer
      vector with values 10, 20, 30.
```

See also

setLdata and the unit test files, e.g., runit.Cpp.vecAMORE.R, for usage examples.

Definition at line 177 of file vecAMORE.cpp.

```
                                                                             {
        return ldata;
};
```

6.3.2.3 template<typename T> void vecAMORE< T >::push_back (boost::shared_ptr< T > *TsharedPtr*)

Append a shared_ptr at the end of ldata.

Implements push_back for the vecAMORE class

Parameters

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

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

                        vc = MyvecCon.getLdata();

                        result.push_back(vc.at(0)->getFromId());
                        result.push_back(vc.at(1)->getFromId());
                        result.push_back(vc.at(2)->getFromId());
```

After execution of this code, result contains a numeric vector with values 10, 20 and 30.

See also

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

Definition at line 45 of file vecAMORE.cpp.

```
                                                                                                {

        this->ldata.push_back(TsharedPtr);
};
```

6.3.2.4 template<typename T> void **vecAMORE**< T >::setLdata (typename std::vector< boost::shared_ptr< T > > *v*)

ldata field accessor function

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

Parameters

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

See also

getLdata and the unit test files, e.g., runit.Cpp.vecAMORE.R, for usage examples.

Definition at line 189 of file vecAMORE.cpp.

```
        {
        ldata=v;
};
```

6.3.2.5 template<typename T > bool **vecAMORE**< T >::show ( )

Pretty print of the vecAMORE<T>

This method outputs in the R terminal the contents of vecAMORE::ldata.

Returns

true in case everything works without throwing an exception

See also

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

Definition at line 56 of file vecAMORE.cpp.

```
                                             {
        // This is equivalent to:
        // for( auto x : ldata) { x.show(); }
        // Waiting for C++0x
        for(typename std::vector< boost::shared_ptr<T>  >::iterator itr = ldata.b
      egin();   itr != ldata.end();   itr++)  { (*itr)->show(); }
        return true;
};
```

6.3.2.6 template<typename T > int vecAMORE< T >::size ( )

Returns the size or length of the vector.

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

Definition at line 200 of file vecAMORE.cpp.

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

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

Here is the caller graph for this function:

vecAMORE::size
vecAMORE::append

6.3.2.7 template<typename T > bool vecAMORE< T >::validate ( )

Object validator.

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

See also

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

Definition at line 71 of file vecAMORE.cpp.

```
                                                {
        for(typename std::vector< boost::shared_ptr<T>  >::iterator itr = ldata.b
      egin();   itr != ldata.end();   itr++)  {  (*itr)->validate(); }
        return true;
};
```

6.3.3 Member Data Documentation

6.3.3.1 template<typename T> std::vector<boost::shared_ptr<T> > vecAMORE< T >::ldata [protected]

Definition at line 14 of file vecAMORE.h.

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

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

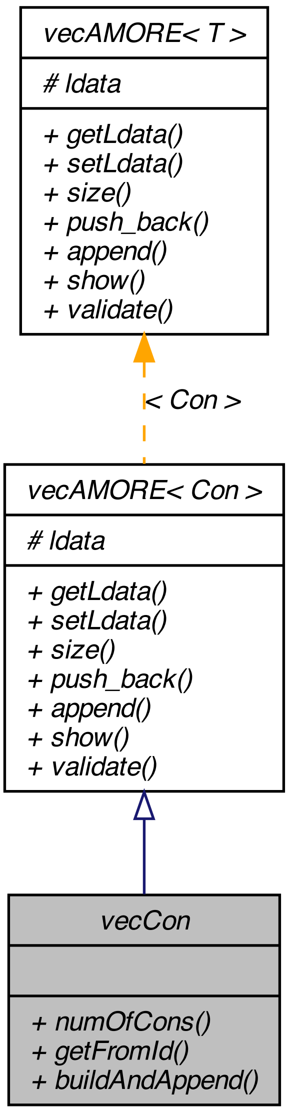
- pkg/AMORE/src/vecAMORE.h
- pkg/AMORE/src/vecAMORE.cpp

6.4 vecCon Class Reference

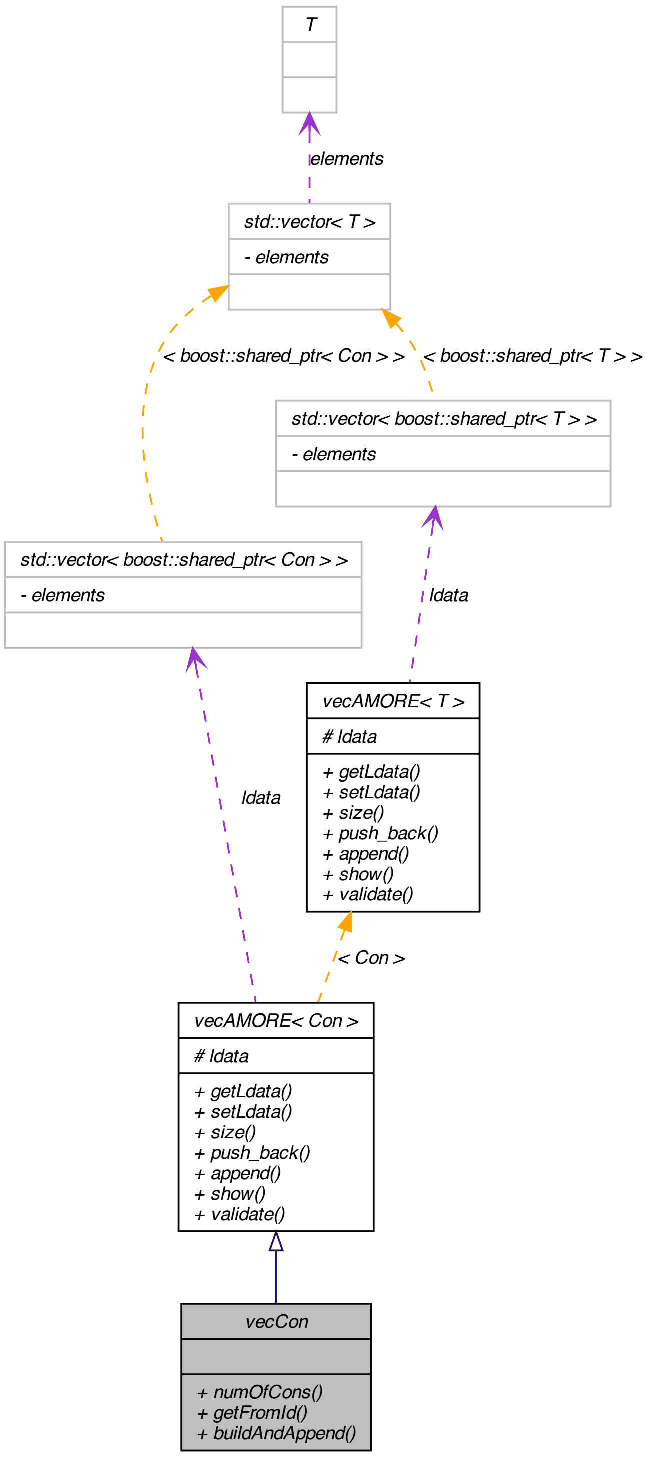
A vector of connections.

`#include <vecCon.h>`

Inheritance diagram for vecCon:



Collaboration diagram for vecCon:



Public Member Functions

- int numOfCons ()

  Size of the vecCon object.
- std::vector< int > getFromId ()

  Getter of the Id values of the vector of Cons.
- bool buildAndAppend (std::vector< NeuronSharedPtr > FROM, std::vector< double > WEIGHT)

  Builds Con objects and appends them to ldata.

6.4.1 Detailed Description

A vector of connections.

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

Definition at line 17 of file vecCon.h.

6.4.2 Member Function Documentation

6.4.2.1 bool vecCon::buildAndAppend (std::vector< NeuronSharedPtr > *FROM*, std::vector< double > *WEIGHT*)

Builds Con objects and appends them to ldata.

This function provides a convenient way of populating a vecCon object by building and apending Con objects to ldata.

Parameters

FROM	A vector of smart pointers to the neurons to be used in the Con::from fields
WEIGHT	A vector of values to be set in the Con::weight fields

```
  //================
  //Usage example:
  //================
 // Data set up
               std::vector<int> result;
               vecCon MyvecCon;
               std::vector<NeuronSharedPtr> vNeuron;
               std::vector<double> vWeight;


               // Test
               NeuronSharedPtr ptNeuron( new Neuron(11) );
               vNeuron.push_back(ptNeuron);
               ptNeuron.reset( new Neuron(22) );
               vNeuron.push_back(ptNeuron);
               ptNeuron.reset( new Neuron(33) );
               vNeuron.push_back(ptNeuron);

               vWeight.push_back(12.3);
```

```
                vWeight.push_back(1.2);
                vWeight.push_back(2.1);

                MyvecCon.buildAndAppend(vNeuron, vWeight);

                result=MyvecCon.getFromId();

        // Now result is a vector that contains the values 11, 22 and 32.
```

See also

append

Definition at line 133 of file vecCon.cpp.

References vecAMORE< Con >::ldata.

```
                 {
        BEGIN_RCPP
        if (FROM.empty()) { throw std::range_error("[vecCon::append]: Error, FROM
       is empty"); }
        if (FROM.size() != WEIGHT.size() ) { throw std::range_error("[vecCon::bui
      ldAndAppend]: Error, FROM.size() != WEIGHT.size()"); }
        ldata.reserve(ldata.size() + FROM.size());
        ConSharedPtr ptCon;
        std::vector<double>::iterator itrWEIGHT = WEIGHT.begin();
        for(  std::vector<NeuronSharedPtr>::iterator itrFROM=FROM.begin();  itrFR
      OM != FROM.end();       itrFROM++ , itrWEIGHT++)        {
                        ptCon.reset(  new Con( itrFROM->get(), *itrWEIGHT) );
                        ldata.push_back(ptCon);
        }
        return true;
        END_RCPP
}
```

6.4.2.2 std::vector< int > vecCon::getFromId ( )

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;
                        vecCon MyvecCon;
                        std::vector<int> result;

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

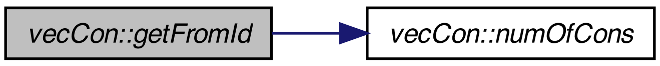
```
                    ConSharedPtr ptCon( new Con(&N1, 1.13) );       // Create
 new Con and initialize ptCon
                    MyvecCon.push_back(ptCon);                            /
/ push_back
                    ptCon.reset(  new Con(&N2, 2.22) );             // create
 new Con and assign to ptCon
                    MyvecCon.push_back(ptCon);                            /
/ push_back
                    ptCon.reset(  new Con(&N3, 3.33) );             // create
 new Con and assign to ptCon
                    MyvecCon.push_back(ptCon);                            /
/ push_back

  // Test
                    MyvecCon.show() ;
                    MyvecCon.validate();
                    result=MyvecCon.getFromId();

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

Definition at line 84 of file vecCon.cpp.

References vecAMORE< Con >::ldata, and numOfCons().

```
                                  {
        std::vector<int> result;
        result.reserve(numOfCons());
        for(std::vector<ConSharedPtr>::iterator itr = ldata.begin();   itr !=
      ldata.end();   itr++)   { result.push_back((*itr)->getFromId()); }
        return result;
}
```

Here is the call graph for this function:



6.4.2.3 int vecCon::numOfCons ( )

Size of the vecCon object.

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

Returns

The size of the vector

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

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

                          // Test
                          result.push_back(MyvecCon.numOfCons());         // Append
       numOfCons to result, create new Con and push_back into MyvecCon
                          ConSharedPtr ptCon( new Con(&N1, 1.13) );       // and re
      peat twice
                          MyvecCon.push_back(ptCon);
                          result.push_back(MyvecCon.numOfCons());

                          ptCon.reset(  new Con(&N2, 2.22) );
                          MyvecCon.push_back(ptCon);
                          result.push_back(MyvecCon.numOfCons());

                          ptCon.reset(  new Con(&N3, 3.33) );
                          MyvecCon.push_back(ptCon);
                          result.push_back(MyvecCon.numOfCons());

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

See also

vecAMORE::size (alias)

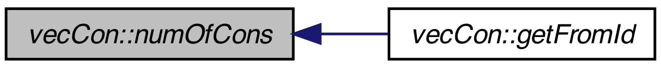
Definition at line 45 of file vecCon.cpp.

References vecAMORE< Con >::ldata.

Referenced by getFromId().

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

Here is the caller graph for this function:



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

- pkg/AMORE/src/vecCon.h
- pkg/AMORE/src/vecCon.cpp

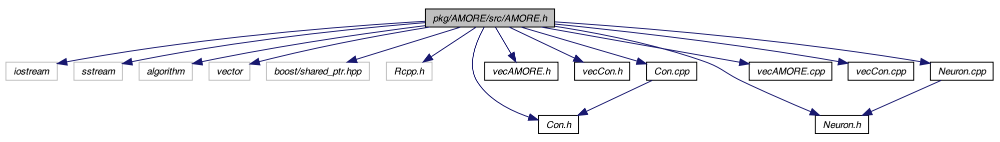
Chapter 7

File Documentation

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

```
#include <iostream>
#include <sstream>
#include <algorithm>
#include <vector>
#include <boost/shared_ptr.hpp>
#include <Rcpp.h>
#include "Con.h"
#include "vecAMORE.h"
#include "vecCon.h"
#include "Neuron.h"
#include "Con.cpp"
#include "vecAMORE.cpp"
#include "vecCon.cpp"
#include "Neuron.cpp"
```

Include dependency graph for AMORE.h:



Typedefs

- typedef boost::shared_ptr< Con > ConSharedPtr
- typedef boost::shared_ptr< Neuron > NeuronSharedPtr

7.1.1 Typedef Documentation

7.1.1.1 typedef boost::shared_ptr<Con> ConSharedPtr

Definition at line 31 of file AMORE.h.

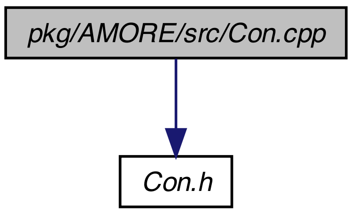
7.1.1.2 typedef boost::shared_ptr<Neuron> NeuronSharedPtr

Definition at line 35 of file AMORE.h.

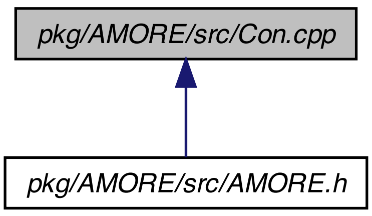
7.2 pkg/AMORE/src/Con.cpp File Reference

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

Include dependency graph for Con.cpp:

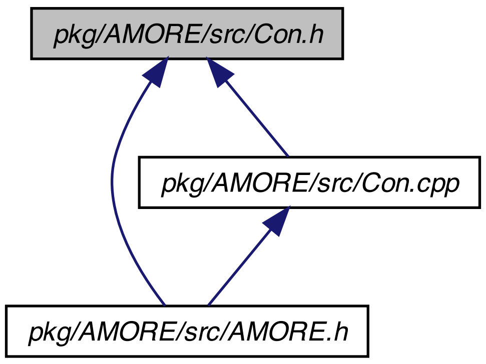


This graph shows which files directly or indirectly include this file:



7.3 pkg/AMORE/src/Con.h File Reference

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



Classes

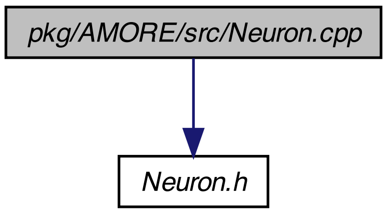
- class Con

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

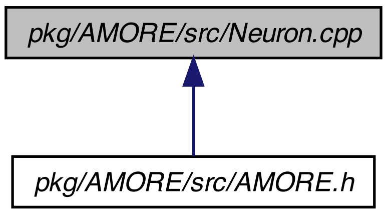
7.4 pkg/AMORE/src/Neuron.cpp File Reference

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

Include dependency graph for Neuron.cpp:

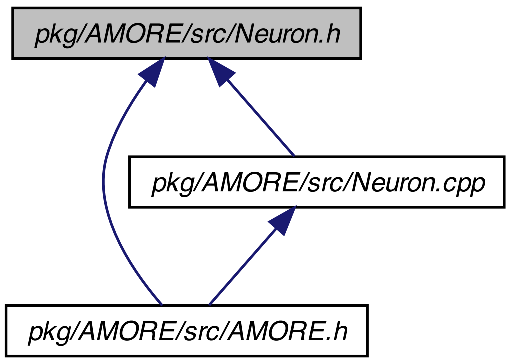


This graph shows which files directly or indirectly include this file:



7.5 pkg/AMORE/src/Neuron.h File Reference

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



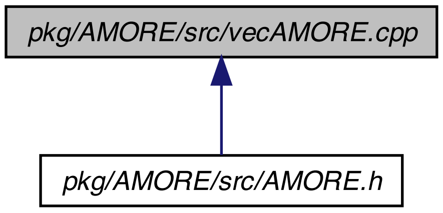
Classes

- class Neuron

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

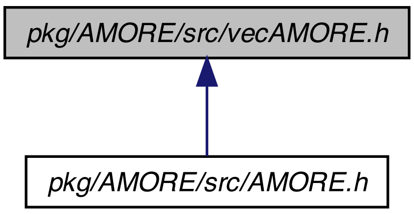
7.6 pkg/AMORE/src/vecAMORE.cpp File Reference

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



7.7 pkg/AMORE/src/vecAMORE.h File Reference

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

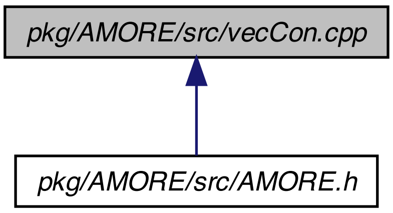


Classes

- class vecAMORE< T >

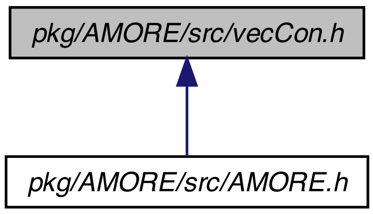
7.8 pkg/AMORE/src/vecCon.cpp File Reference

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



7.9 pkg/AMORE/src/vecCon.h File Reference

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



Classes

- class vecCon

    A vector of connections.

Index