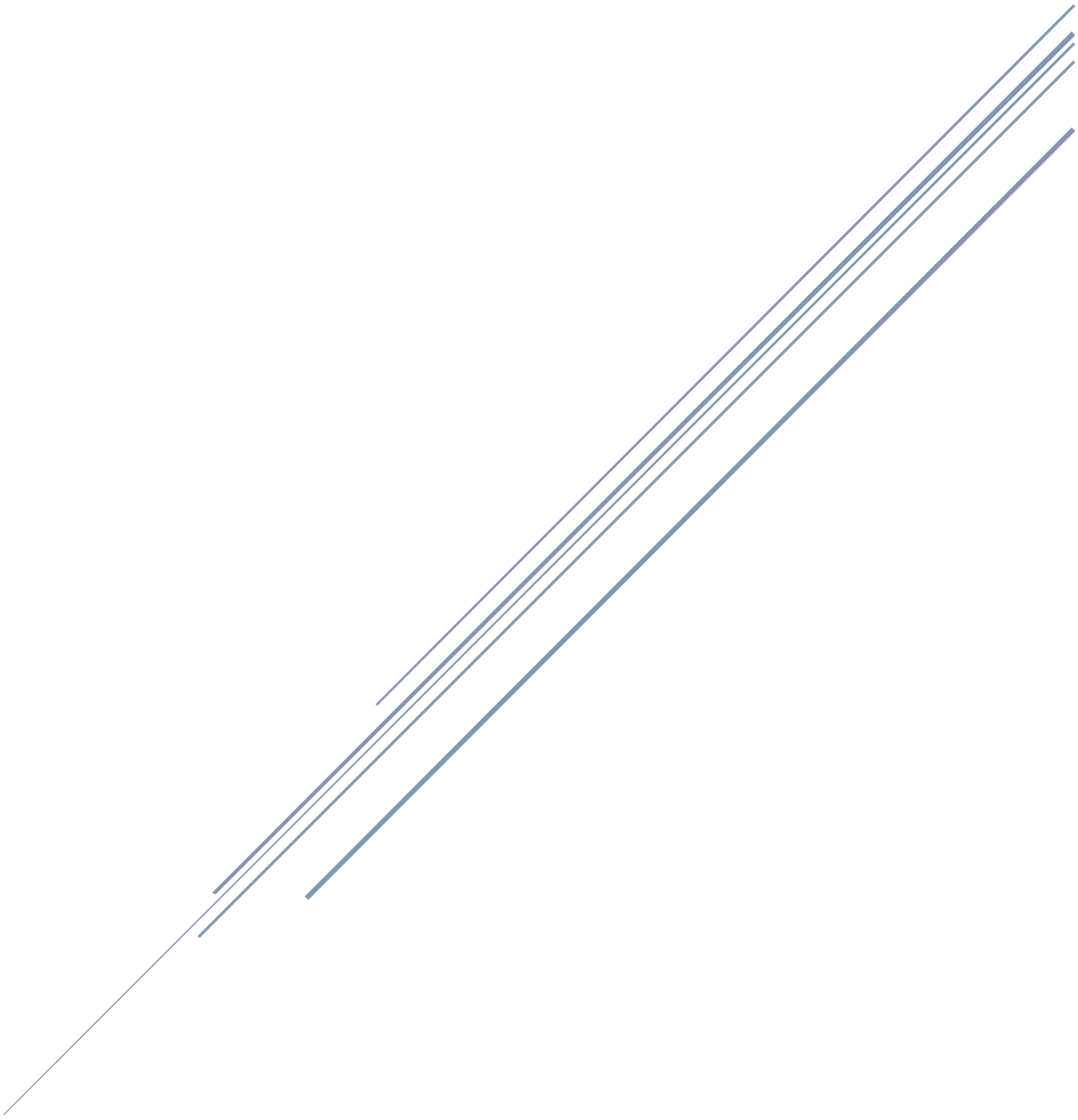
RLM API DOCUMENTATION



Last updated 03/30/2017

RlmNetwork Class

class RlmNetwork

- Controls Network Creation and RLM objects training state.

Constructor:

RlmNetwork()

- default contstructor, creates "RyskampNeuralNetworks" database

RlmNetwork(string **databaseName)**

- string databaseName
  - sets your preferred database name

Methods and Properties

void NewNetwork

- Sets up a new network and sets the network as current network to use in training.

Syntax:

NewNetwork(string **name,** List<rlm_io> **inputs,** List<rlm_io> **outputs** = null**)**

- string name
  - Your preferred network name
- List<rlm_io> inputs
  - List of input types for your created network
- List<rlm_io> outputs
  - List of output types for your created network

bool LoadNetwork

- Loads selected network's data (input types, output types, training data, network settings) from the Database into memory lists.
- Is used as an indicator if there's a need to create a new network.
- Returns true if network is successfully loaded.

Syntax:

LoadNetwork(string **name)**

- string name
  - the network you prefer to load

Alternate Syntax:

LoadNetwork()

- Loads the first network in the database, sorted by ID

Int64 SessionStart

- Sets the state of the session to started
- Returns the Session ID of the current session
- Cannot be used again prior to SessionEnd()

Syntax:

SessionStart()

void SessionEnd

- Halts the current session
- Updates current session's score and Time Stop Property of the session

Syntax:

SessionEnd(double **FinalSessionScore)**

- double FinalSessionScore
  - the score of the current session

void ScoreCycle

- Saves cycle information to database and updates with the score

Syntax:

ScoreCycle(int64 **CycleID,** double **CycleScore)**

- int64 CycleID
  - Unique identifier of the Cycle
- double CycleScore
  - Score the engine attained this cycle

int NumSessions

- The set number of sessions

int StartRandomness

- The starting percentage of randomness to be used by the engine

int EndRandomness

- The last percentage of randomness where the engine halts

double MaxLinearBracket

- Maximum value set for the range of Linear Type Training

double MinLinearBracket

- Minimum value set for the range of Linear Type Training

void TrainingDone

- Notifies the RLM that the current training/prediction sessions are finished and you will no longer use the RLM Network instance.
- Also, it allows the DataPersistence events to work properly so this must be called at the very end.

void SetDataPersistenceProgressInterval

- Changes the interval time that the DataPersistenceProgress event is triggered. Default time is 1000ms (1 second)

Syntax:

network.**SetDataPersistenceProgressInterval**(int **milliseconds**);

- **milliseconds** is the amount of time you set the progress interval that the event is triggered

RlmIO Object

class RlmIO

- object type for input and output settings

Constructor:

RlmIO(string **name,** string **dotNetType,** double **min,** double **max,** long **ID = 0)**

- string name
  - Sets RlmIO Name property
- string dotNetType
  - Sets RlmIO DotNetType property which assigns the object type in .NET
- double min
  - Sets RlmIO Min property which sets the minimum range value of the input or output
- double max
  - Sets RlmIO Min property which sets the maximum range value of the input or output
- Long ID
  - Assigns unique identifier to the input/output

RlmCycle Class

class RlmCycle

- handles processing of training data

Methods and Properties

RlmCyclecompleteArgs RunCycle

- starts training

Syntax:

RlmCyclecompleteArgs **RunCycle(**RlmNetwork `rnnNet`**,** int64 **sessionID,** List<RlmIOWithValue> **input_values,** bool **Learn,** List< RlmIOWithValue> **output_values** = null**,** double **cyclescore** = 0.000**,** IEnumerable<RlmIdea> **ideas = null)**

- RlmNetwork `rnnNet`
  - current network being used
- int64 sessionID
  - unique identifier for the session being started
- List<RlmIOWithValue> input_values
  - Inputs with stored values
- bool Learn
  - Indicator that if true, will start training, if false, will run prediction
- List< RlmIOWithValue> output_values
  - Outputs with stored values
- double cyclescore
  - Score of the current cycle
- IEnumerable<RlmIdea> ideas
  - Gives bias to the RLM on what to output

RlmCyclecompleteArgs Object

class RlmCyclecompleteArgs

- object type that stores cycle outputs with the rlm network

Constructor:

RlmCyclecompleteArgs (RlmCycleOuput **cycleOutput,** RlmNetwork **network,** RlmNetworkType **rnnType)**

- RlmCycleOuput cycleOutput
- RlmNetwork network
    - current RLM Network
- RlmNetworkType rnnType
    - current RLM Network Type

RlmCycleOutput Object

class RlmCycleOutput

- object type that stores cycle output with cycle information

Constructor:

RlmCycleOutput (long **cycleID,** long **solutionID, IEnumerable<Output_Values_Solution> outputsWithVal, string CycleGUID)**

- long cycleID
    - unique identifier for the cycle
- long solutionID
    - unique identifier for the solution
    - IEnumerable<Output_Values_Solution> outputsWithVal
- string CycleGUID