Note on compatibility with UnityNEAT

EspNeat builds on UnityNEAT. Most scripts are the same as those in UnityNEAT, so they can be directly changed if there are updates. See https://github.com/colgreen/UnityNEAT

However, a many scripts are either new to this version, or they have been modified and would need to be adapted before using a newer version from UnityNEAT. If there are no mistakes, these scripts are clearly classified in subfolders named "EspNeat".

Note that there are also some minor changes in the organization of the scripts. I have created the folder "Coordination", where I have also included SimpleExperiment and SimpleEvaluator (these were in the folder for the example scene Assets/CarExperiment before).

You might find some stylistic differences between my "unaltered" scripts and those in Colin Green's Github, but the code should be the same. Some scripts, like UnityParallelListEvaluator, were lacking comments. I also tried to address this problem where I thought it might help, so you may want to check this before blindly upgrading any scripts to a newer version.

The following scripts have only very minor changes (so updating them from a new UnityNEAT version should be very easy).

SimpleEvaluation

Added get to StopConditionSatisfied.

Set StopConditionSatisfied in the constructor.

SimpleExperiment

Added EspNeatOptimizer _optimizer field, which is received in a new constructor. Substitues the old Optimizer field (base class of EspNeatOptimizer) and the SetOptimizer method.

Slightly updated CreateEvolutionAlgorithm method (improved exceptions).

UnitController

Added “selected” field with complete get/set functions.

Added abstract function “GetBox()”.

IphenomeEvaluator

Added StopConditionSatisfied set.

AbstractGenerationalAlgorithm

Added set for CurrentGeneration and CurrentChampGenome.

Commented calls to OnUpdateEvent in StartContinue(), because it updated information before needed (and the displayed current generation read “1, 1, 2, 3…”).

NetworkXmlIO

Added local output and regulatory neuron types to GetNodeType and GetNodeTypeString.

NodeType

Added Local_In, Local_Output and Rergulatory types.

XmlIoUtils

Added ReadAttributeAsBool.

ExperimentUtils

(In Network\Domains). Added EspCyclic case to CreateActivationScheme.

NetworkActivationScheme

Added _esp bool field (with get method) and added CreateEspCyclic method.

NeatGenomeDecoder

Added if activation.Esp and the method DecodeToEspCyclicNetwork.

DefaultActivationFunctionLibrary

Modified the method CreateLibraryNeat so it accepts not one, but three different activation functions (so regulatory and output neurons can use their own specific functions).

NeatGenomeParameters

Substitued _activationFn field (and get/set) with three new activation function fields.