Appendix D

The flow chart illustrates the principal of the artificial evolutionary technique.
Begin with a simple robot’s body plan

Add a new function?

Add a new ANN module?

Add a network module in front or at the rear of existing module?

Intra or inter module connection?

Copy and paste a network or a module?

Copy and paste the network or the module?

Add a neural network module. The number of neurons in the module is determined by the Evolutionary Algorithm

Evolve the network (neuron parameters, connection status (excitatory or inhibitory) and connection weights) until the fitness does not increase further

Has the fitness reached its maximum possible value?

Is the body plan or the environment of the robot allowed to become more complex?

Deconstrain the environment or the body plan

Algorithm stop

Note: The search space is proportional to number of neurons in the network.