# The Agents.

The experiments are set in a simulated 2D environment, agents were originally based on a simplification of a real-world robot built by the author.

Agents are equipped with a circular body, two motors and a sensor array.

Control is effected by a dynamic recurrent neural network (Beer 1990)

Sensor morphology, sensory-motor profiles, network architecture and weight sets can all be separately evolved using the chromosomal GA.

Anatomy
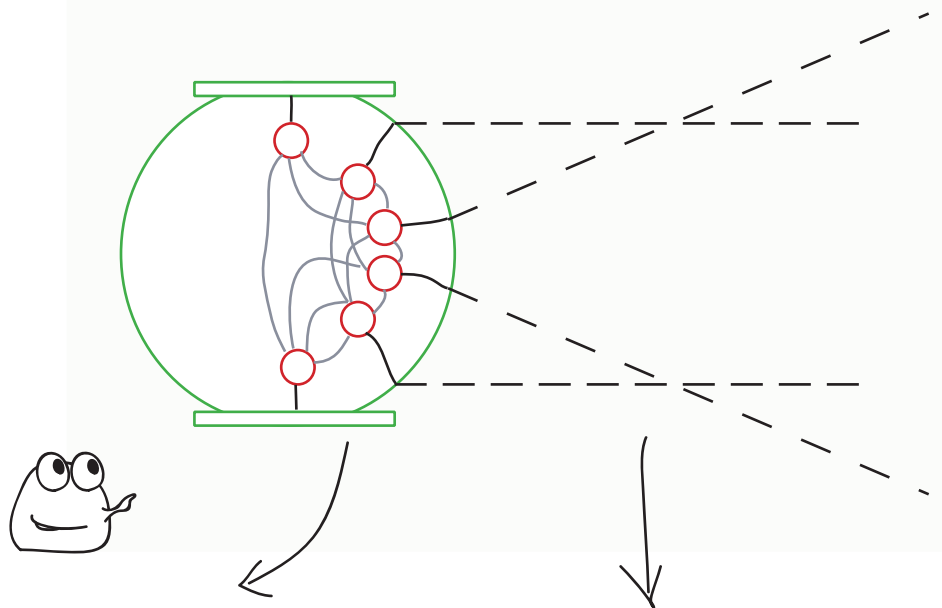
Sparsely connected dynamic recurrent networks are encoded using a spatial arrangement of neurons which determines connectivity and synaptic profiles.
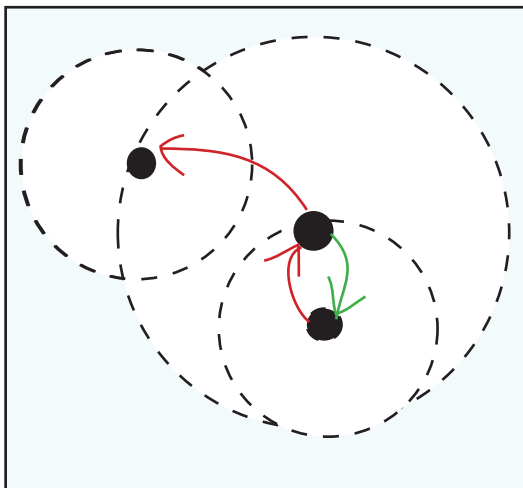
Sonar and light sensors are approximated using ray tracing techniques.

Each returns a value normalised by the sensor range: (0, 1]

Range, direction and position on the agent can be evolved.

The neural networks, genetic algorithms and simulation physics all belong to an extensive software library in Java.

Developed by **Tony Poppleton** and **Dan Cowan** the package enables rapid deployment with maximum flexibility. The ideal a.life toolkit.