

An adaptation of social Learning in evolutionary computation for tic-tac-toe.

Abstract

This paper investigates an integration of individual and social learning, utilising evolutionary neural networks, in order to evolve game playing strategies. Individual learning enables players to create their own strategies. Then, we allow the use of social learning to allow poor performing players to learn from players which are playing at a higher level. The feed forward neural networks are evolved via evolution strategies. The evolved neural network players play first and compete against a nearly perfect player. At the end of each game, the evolved players receive a score based on whether they won, lost or drew. Our results demonstrate that the use of social learning helps players learn strategies, which are superior to those evolved when social learning is not utilised.

Keyword: Evolutionary strategies; Neural network; Individual learning; Social learning; Tic-Tac-Toe