

Title:

Coevolving Game-playing Strategies

Abstract:

The iterated prisoner's dilemma (IPD) game has been used extensively in modelling various real-world situations. This talk is concerned with the evolutionary approach to the IPD game. Firstly, we generalised the game from the classical 2 player case to N ($N > 2$) players and investigate the impact of the group size, memory length and interaction history on evolutionary learning. Secondly, we studied a more realistic IPD game where more than two levels of cooperations are allowed. Interestingly, more choices appear to discourage cooperation among players, i.e., making mutual cooperation harder to learn. Possible reasons for this were mentioned. Thirdly, we introduced reputation into the IPD game and studied its impact on the evolution of cooperation. It turns out that the reputation of a player is an important factor in encouraging cooperative behaviours. Finally, some concluding remarks were made.