Automata playing iterated Prisoner's Dilemma [

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Analítica

This study deals with deterministic strategies for playing the iterated Prisoner's Dilemma. Each strategy is incorporated into the table of a finite state automaton. 4-bit and 16-bit strategies are exhaustively studied on this paper, meanwhile 64-bit strategies have been approached by means of a Genetic Algorithm. Both ideas, of studying deterministic strategies and using a Genetic Algorithm, are in Axelrod's The Complexity of Cooperation.Regardings4-bit strategies, a conclusion has been imposed: Tit for Tat is not the winning strategy. Regarding 16-bit strategies, Tit for Tat has not been the winner either.Regarding 64-bit strategies, we should mention the method to evolve chromosomes found by the Genetic Algorithm confronting them with a control set of strategies. There are also 64-bit strategies better than Tit for Tat
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Otras relaciones: https://revistas.ucm.es/index.php/RESF/article/view/62028/4564456548430 /*ref*/Axelrod, R. (1980): "Effective Choice in the Prisoner's Dilemma". The Journal of Conflict Resolution, Vol. 24, No. 1, pp. 3-25 /*ref*/Axelrod, R. (1980): "More Effective Choice in the Prisoner's Dilemma". The Journal of Conflict Resolution, Vol. 24, No. 3, pp. 379-403 /*ref*/Axelrod, R. (1984) : The Evolution of Cooperation. N. York, Basic Books Inc. Publisher /*ref*/Axelrod, R. (1997): The complexity of cooperation : agent-based models of competition and collaboration. Princeton (N. J.), Princeton University Press /*ref*/Axelrod, R and Dion, D. (1988): "The Further Evolution of Cooperation". Science 242, pp. 1385-1390 /*ref*/Axelrod, R. and Hamilton, W. D. (1981): "The Evolution of Cooperation". Science 211, pp. 1390-1396 /*ref*/Goldberg:, D. E. (1989): Genetic Algorithms in Search, Optimization and Machine Learning. Reading (MA), Addison-Wesley Pub /*ref*/Ho, Teck-Hua (1996): "Finite automata play repeated prisoner's dilemma with information processing costs". Journal of Economic Dynamics and Control 20, pp. 173-207 /*ref*/Hofstadter, D. R. (1983): "Computer tournaments of the Prisoner's Dilemma suggest how cooperation evolves". Scientific American, Volume 248, Issue 5, pp. 16-26 /*ref*/Holland, J. H. (1992): Adaptation in Natural and Artificial Systems. Cambridge (MA), The MIT Press /*ref*/Miller, J. H. (1996): "The coevolution of automata in the repeated prisoner' s dilemma". Journal of Economic Behavior and Organization Vol. 29, pp. 87-112 /*ref*/Minsky:, M. (1967): Computation: Finite and Infinite Machines. Englewood Cliffs, N. J., Prentice-Hall Inc /*ref*/Mitchell, M. (1999): An Introduction to Genetic Algorithms. Cambridge (MA), The MIT Press /*ref*/Rubinstein, A. (1986): "Finite Automata Play the Repeated Prisoner's Dilemma". Journal of Economic Theory 39, pp. 83-96 /*ref*/De Santiago, R. y García, J.A. (1994): "Es posible ganar a Toma-y-Daca?". Anales de Estudios Económicos y Empresariales, Vol. 9, pp. 159-184 /*ref*/Simon, H. (1996): The Science of the Artificial. Cambridge, MA, The MIT Press

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