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Nash ϵ-equilibria for stochastic games with total reward functions: an approach through Markov decision processes. (English) Zbl 1449.91018

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Summary: The main objective of this paper is to find structural conditions under which a stochastic game between two players with total reward functions has an ϵ-equilibrium. To reach this goal, the results of Markov decision processes are used to find ϵ-optimal strategies for each player and then the correspondence of a better answer as well as a more general version of Kakutani's fixed point theorem to obtain the ϵ-equilibrium mentioned. Moreover, two examples to illustrate the theory developed are presented.

MSC:

91A15 Stochastic games, stochastic differential games
91A05 2-person games
90C40 Markov and semi-Markov decision processes

Keywords:

stochastic games; Nash equilibrium; Markov decision processes; total rewards

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