

Stochastic game

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Abstract

- ▶ In Stochastic game is a collection of normal-form games that the players play repeatedly. The particular game played at any time depends probabilistically on the previous game played and the actions of the players in that game. Stochastic two-player games are greatly used for modeling and evaluation of discrete systems operating in a new environment. Basically, one player aims at maximizing the probability of "good" runs, while the other player pursuits at the opposite. In many instances, there exists an equilibrium value of this probability, but optimal strategies for both players may not exist.

Outline

- ▶ Background Introduction
- ▶ The theory of stochastic game
- ▶ Explain the game process
- ▶ Markov decision processes and repeated games
- ▶ Show the application of stochastic game in economics
- ▶ Conclusion

Reference

- ▶ Condon, Anne. "The Complexity of Stochastic Games." *Information and Computation* 96.2 (1992): 203-24. Web.
- ▶ Filar, Jerzy, and Koos Vrieze. "Competitive Markov Decision Processes." (1996): n. pag. Web.
- ▶ Gao, Xing, Weijun Zhong, and Shue Mei. "Stochastic Evolutionary Game Dynamics and Their Selection Mechanisms." *Comput Econ Computational Economics* 41.2 (2012): 233-47. Web.