Plenary Lecture

Genetic Search Algorithms to Fuzzy Multiobjective Games: A Mathematica Implementation

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Abstract: Genetic search algorithms have soon demonstrated their helpful contribution in finding the solutions of complex real-life optimization problems. Playing games with genetic algorithms has been already proposed. These algorithms have been extensively applied for solving Nash equilibria of fuzzy bimatrix games with single objective. The experience shows the capacity of the algorithms to find solutions to single objective quadratic programming problems without an exhaustive search. It also shows its capacity to treat multiobjective programming problem without any optimal weighting of the objectives, as in the Nishizaki-Sakawa models. This study is an attempt to consider the complexity of the real life, when the decision makers are faced to the satisfaction of multiple objectives in a fuzzy environment. This study uses the software *MATHEMATICA* 7.0.1 to implement this techniques in a favorable computing environment.

Brief Biography of the Speaker: At present, Professor André A. Keller is an associate researcher in mathematical economics at CLERSÉ - Centre Lillois d'Etudes et de Recherches Sociologiques et Economiques - a research unit UMR/CNRS 8019 of the French Centre National de la Recherche Scientifique (CNRS) at the University Lille 1, for Sciences and Technologies. Prof. Keller received his PhD in Economics (Operations Research) in 1977 from the Université de Paris. He taught applied mathematics (optimization techniques), econometrics, microeconomics, theory of games and macrodynamics. His experience centers are on discrete mathematics (graph theory), building and analyzing large scale macro-econometric models, as well as evaluating economic policies. Since 1985, his research interest has concentrated on modeling high frequency time-series: spectral properties of usual filters, automatic selection of ARIMA models, efficiency tests. Since 1990, Prof. Keller's research is centered on discrete mathematics (graph theory), stochastic differential games and tournaments, circuit theory of systems, dynamics and optimal control in economic modeling under uncertainties, and in a fuzzy environment. Prof. Keller's publications consist in writing articles and co-authoring books. The articles in scientific reviews are on model building and game theory, with application to macroeconomics and international finance. The books chapters are on semi-reduced forms of econometric models (Martinus Nijhoff, 1984), econometrics of technical change (Springer and IIASA, 1989), advanced time-series analysis (Woodhead-Faulkner), circuits enumeration in digraphs (Springer, 2008), stochastic differential games (Nova Science, 2009), optimal fuzzy control (InTech, 2009), circuit analysis (Nova Science, forthcoming 2010).