

Players? selection for basketball teams, through Performance Index Rating, using multiobjective evolutionary algorithms

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In any sport the selection of players for a team is fundamental for its subsequent performance. Many factors condition the selection process from the characteristics of the sport discipline to financial limitations, including a long list of restrictions associated with the environment of the competitions in which the team takes part. All of this makes the process of selecting a roster of players very complex, as it is affected by multiple variables and in many cases marked by a great deal of subjectivity. The purpose of this article was to objectively select the players for a basketball team using an evolutionary algorithm, the Non-dominated Sorting Genetic Algorithm II (NSGA-II) that uses stochastic search methods based on the imitation of natural biological evolution. The sample was composed of the players from the teams competing in the top Spanish basketball league, the Association of Basketball Clubs (ACB). To assess the quality of the solutions obtained, the results were compared with the teams in the ACB playing in the same competition as the players used in the study. The results make it possible to obtain different solutions for composing teams rendering financial resources profitable and taking into account the restrictions of the competition and of each sport management. © 2019 Pérez-Toledano et al. This is an open access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.