Automated synthesis of mobile game environments and rulesets using a hybridized interactive evolutionary programming approach

Abstract

By hybridizing Evolutionary Programming (EP) with Interactive Evolutionary Algorithm (IEA), game rules and its playing environment will be automatically generated for an arcade-type game that can be played on the Android mobile platform. In this study, mutation rates of 0.7 and 0.9 are used to generate both the game rules and the game environment for the mobile game. Players are used as the evaluator instead of the conventional mathematical fitness functions and hence the motivation for using high mutation rate is that they are able to generate higher levels of diversity during the optimization runs. This interactive mode of game-playing cum evaluation will enable the creation of games that can fit the user's preferences as well as styles of game-playing. Experiments show a very positive result where very good evaluation scores were obtained from the users. This shows that with a high mutation rate, the hybridized EP with IEA approach can generate rules and environments that are well-accepted and liked by human players.