



## OPTIMAL ONE DAY INTERNATIONAL CRICKET SQUAD SELECTION BY GENETIC ALGORITHM

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Cricket is one of the most popular sports in the world. At present it is played professionally and amateur level around the world. Therefore it has an immense financial value. Winning more matches will generate more money for the winning countries. Selecting the optimal squad for a particular series is always a challengeable task. This study is an attempt to develop an algorithm to select optimal one- day Cricket squad of Sri Lanka for 2015 world cup which is played in Australia. The process of this study is a combination of Ranking method and Genetic Algorithm method. Initially all 30 players in the one-day international cricket pool are categorized as batsmen, fast bowlers, spin bowlers, all-rounders and wicket keepers. Then players' performance values are evaluated using variables such as batting average, batting strike rate, bowling average, number of wickets per match and experience. After that fitness function is defined by considering each individual's performance in Australia and overall performances. Players are ranked on their performances. After defining an initial population and constraints of the squad, Genetic Algorithm is applied through cross over and mutation processes until the optimal cricket squad is observed. The model is validated using Pakistan 1992 world cup squad which was the winning squad of 1992 world cup and it was played in Australia. It is found that proposed model correctly selected 13 players out of 15 for 1992 Pakistan world cup squad, which accounts 86% accuracy. Proposed model selected 12 players out of 15 for the 2015 Sri Lankan World cup squad, which accounts 80% accuracy. According to the 1992 world cup squad obtained by Genetic Algorithm, two players are not in the original squad. The main reason for that is, in 1992 these two players had played only few matches. Therefore due to lack of international data their rank values are very low. Proposed model can be improved by considering players performances of club level and league matches. Because of any series we expect at least one or two new players, 80% accuracy is highly encouraged.

**Keywords:** Genetic Algorithm, Optimal selection, cross over process, mutation process