

**GENETIC ALGORITHM TUNING:  
OVERCOMING DIVERSITY LOSS IN  
TOURNAMENT SELECTION**

By

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## ABSTRACT

This study analyzes the efficacy of using unbiased tournament selection in Genetic Algorithms compared to the performance of well-tuned random tournament selection with respect to the Travelling Salesman Problem. By stopping diversity loss by non-selection, unbiased tournament selection has been shown to perform better than other forms of selection when neither algorithm has been tuned for optimum performance. However, with parameter tuning and standard optimizations it is shown that the gains made by unbiased selection may be overcome in many cases. Both overall fitness and time to converge (speed) are examined against a series of city tours, populations, crossover pressures, and mutation rates.