

## Optimization of Design Problems Using TLBO and mTLBO Algorithms

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### Abstract

Every design problem requires optimization. There are many traditional and advanced optimization techniques available. Teaching-learning-based optimization algorithm has been proved beneficial in many engineering applications. This algorithm is free from any algorithm-specific parameters and can be adapted to all types of design problems. However, there are some limitations like convergence to local optimal solution, large computational time and slow convergence rate for complex functions. Some modifications were introduced to overcome these drawbacks in mTLBO algorithm. This paper gives better idea of both algorithms by applying them to optimize standard engineering design problems. Their performance was compared with differential evolution algorithm and some hybrid approaches of this algorithm. Best solution was obtained for all the testing problems using mTLBO algorithm. Also the solutions were obtained using less number of evaluations than other algorithms. Therefore, from present work, it can be inferred that mTLBO algorithm gives global optimum solution and requires less computational efforts.