

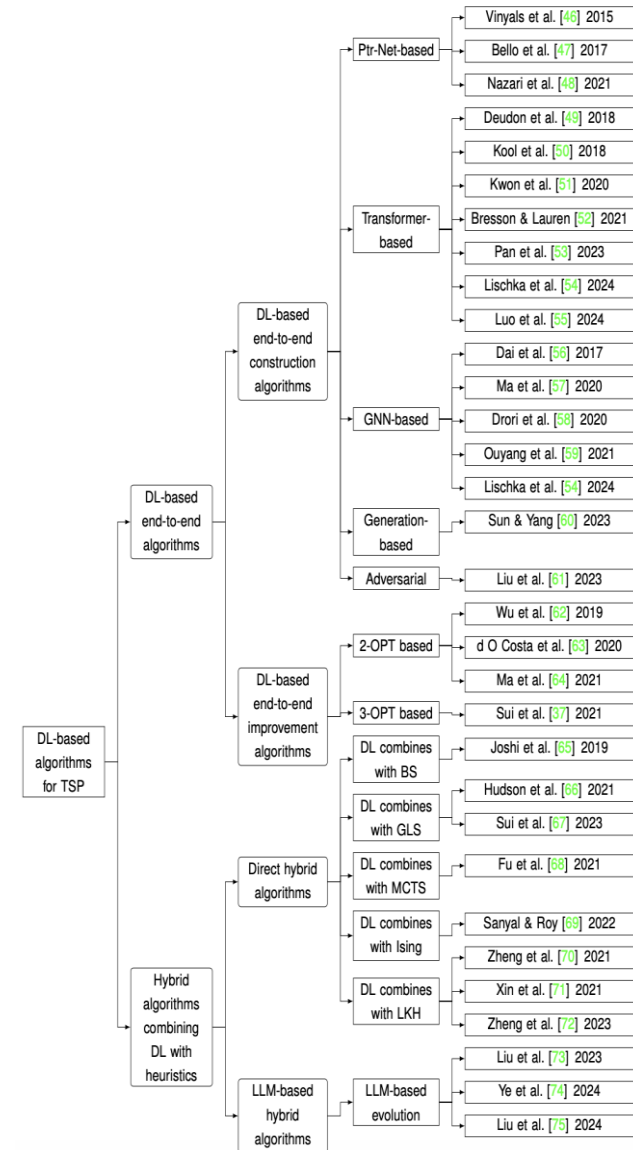
A Survey on Deep Learning-Based Algorithms for the Traveling Salesman Problem

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Problems & Ideas

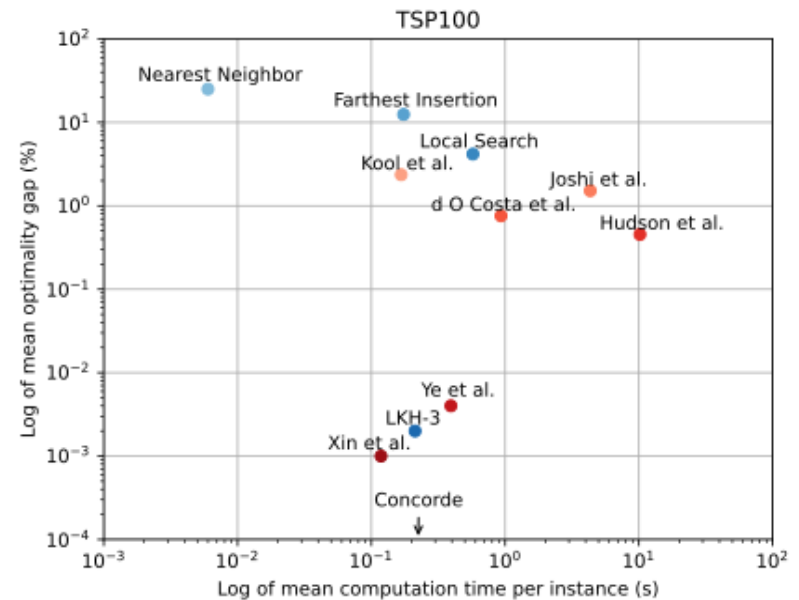
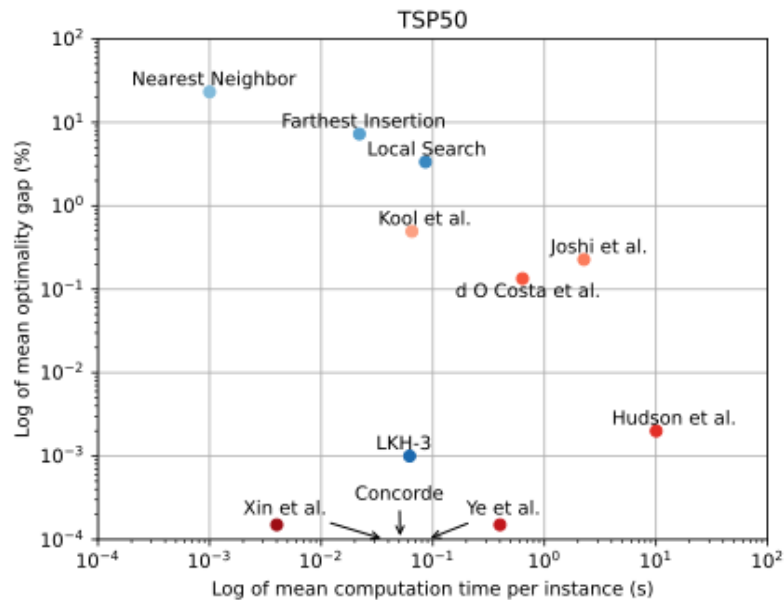
- Problems of surveys on deep learning-based algorithms for TSP:
 - Existing surveys do not cover comprehensive enough algorithms
 - Existing surveys focus on theoretical analysis, lacking experimental validation and discussion
 - Existing surveys lack algorithms based on large language models
- Ideas:
 - Offer detailed categorization of algorithms
 - DL-based end-to-end construction algorithms
 - DL-based end-to-end improvement algorithms
 - Direct hybrid algorithms
 - LLM-based hybrid algorithms
 - Perform experimental validation and analysis on representative algorithms from each category
 - Evaluate generalization of algorithms
 - Introduce and evaluate algorithms based on large language models



Classification of DL-based algorithms for TSP

Main Contributions

- Contributions:
 - Reviews DL-based algorithms for TSP, categorizing them and analyzing their principles, advantages, drawbacks, and performance
 - Evaluates performance of representative algorithms and discusses the findings
 - Present perspective on future research



Comprehensive perspective of solution quality and computation time for various algorithms on TSP50 and TSP100. Hybrid algorithms exhibit superior performance, when considering both solution quality and computation time.