MOMGA*: Empower Urban Transport for a Greener and Smarter Future

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Transport Options:
- Travel Modes
- Distinct Advantages

Optimisation: Minimise Multiple Travel Costs

Running Time Reduction:
- 50.85% ~ 98.49%, with finding all optimal solutions.
- Effective utilisation of heuristics ensured.

Walk-based sampling is beneficial for all categories of node embedding methods to preserve distance-related information.

Example of multi-objective multi-graph search

MOMGA* with Likely-admissible Learning Heuristics

Learning Heuristics
- A likely-admissible learning heuristic function is developed to speed up MOMGA* search.
- First utilised in multi-objective optimisation.
- Node embedding methods are used to extract node features.
- Walk-based shallow embeddings are identified as the key to accurately predict shortest path costs.

Potentials
- Ministry of Transport
  Decarbonising Transport

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Research Review
- Founded by EPSRC, to the value over £1M
- Applied to multi-modal urban transport scene
- AMOQA*: 16% less taxiing time & 13% less fuel consumption