

VRPPD Challenge

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Team5

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Implemented Approach

- Greedy constructive heuristic to build the initial solution
- Ruin-and-Recreate
 - Remove a subset of deliveries
 - Re-insert the removed deliveries

Initial Solution

best_insertion(solution, delivery):

- returns the min cost {courier, pickup and dropoff position}

constructive_heur():

- shuffle the deliveries
- serve each delivery in the best_insertion allocation

Max attempts = 100

Stop as soon as a feasible solution that serves all deliveries is found

Ruin-and-Recreate

- Remove a subset of deliveries (Ruin)
 - Simulate a random walk starting from a random selected courier
 - Remove all deliveries belonging to the visited couriers
 - Stop the ruin when R deliveries have been removed (R between 5 and 9)
- Re-insert the removed deliveries (Recreate)
 - Apply *constructive_heur*
 - 3 recreate attempts
 - Accept only non-worsening solutions!
 - Solutions with more served deliveries (any cost)
 - OR with the same number of deliveries and not more expensive

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Experiments Settings

- Implemented in C++
- Timelimit
 - 216 seconds for 45 instances
 - 600 seconds for 5 instances
- Stops after 100k consecutive non-improving iterations

Thanks