

Capacitated Arc Routing Problems

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Outline

What is CARP?

My workflow to CARP

Two Questions

How many of you still remember what is CARP?

How many of you are familiar with the genetic algorithm?

Two Questions

It is fine that your answers are NO, I know you guys!

Non-Heuristic Algorithm

I strongly suggest you enhance your algorithm step by step, so you'd better spend one hour to implement a simple algorithm first.

Don't worry! The result will be very very very bad, but it is a valid solution!

At least you won't get ZERO.

Path-Scanning/Random-Scanning

Now you get a deep understanding of what is CARP, what should a feasible solution looks like and the solution format we want!

It's time to make some progress.

Let's try some heuristic algorithms, then you'll get a not bad solution.

This may take you one day.

Genetic Algorithms

Initial Population: Randomly generate? Don't do that.. Since we already implemented Path-Scanning.

Crossover: Sequence Based Crossover(Read paper by yourself, or you can ask me).

Mutation: It depends how to design the mutate operator.

Random Sort: Don't only focus on good children, give those poor children some opportunities, please!

Questions

If you have any questions, ask me later!