



Efficient Train Scheduling

In centrally controlled traffic systems like train networks, it is difficult to find schedules that meet all requirements and react to unexpected events in a timely manner.

Train scheduling is an NP-hard problem. The complexity is increased due to interdependencies between trains, such as connections, and the inability of trains to overtake one another on the same track. Software assistance is needed to find good solutions to a given scheduling problem.



The Swiss Federal Railways lately started the Train Schedule Optimisation Challenge,¹ which is a competition to algorithmically solve different train scheduling problem instances on networks of various sizes.

The goal of this thesis is to use the problem set provided by the Swiss Federal Railways and develop an efficient and scalable scheduling algorithm to compete in the challenge. Furthermore, the findings may be adapted to other problems that are being worked on in our group.

Requirements: Creativity and programming skills are advantageous. The student(s) should be able to work independently on this topic!

Interested? Please contact us for more details!

Contact

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¹<https://www.crowdai.org/challenges/train-schedule-optimisation-challenge>