

“Development of a Method for Coordinated Rerouting Planning for Interdependent Construction Sites”

The objective of this thesis is the development of a method for the coordinated planning of rerouting concepts for multiple concurrent construction sites in railway networks. This method should enable the joint consideration of several potentially interdependent sites, considering remaining network capacities and feasible rerouting alternatives.

Based on a literature review of existing approaches to rerouting, capacity management, and construction coordination in railway networks, a suitable modelling approach is to be selected and further developed for practical application. Dependent construction measures must be identified and clustered. The resulting clusters shall be prioritized, and appropriate rerouting concepts have to be developed within each cluster.

To demonstrate the applicability of the developed method, an example is to be designed and evaluated. Based on plausible assumptions regarding the required input data, such as residual capacities and construction site characteristics, the proposed approach has to be implemented algorithmically using Python and possibly an optimization solver such as Gurobi.