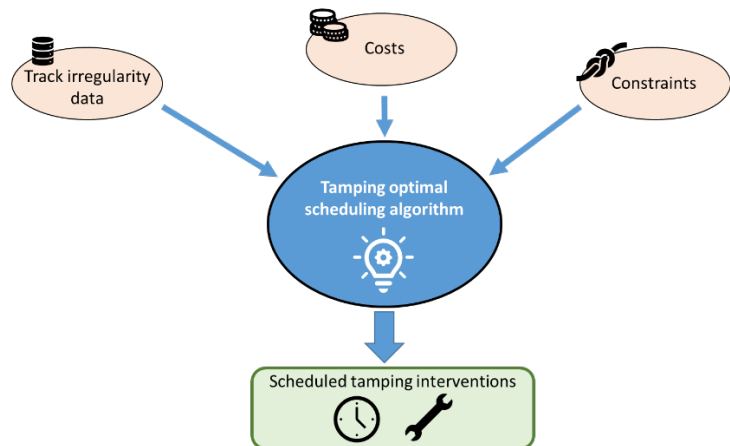


Ballast degradation analysis for optimal tamping scheduling and management (refer to Prof. A. Collina and Ing. L. Bernardini – andrea.collina@polimi.it and lorenzo.bernardini@polimi.it)

Optimized management of railway networks, subject to increasing travelling loads and traffic, as well as ageing and degradation of track components, demands for adequate understanding and analysis of degradation phenomena. Ballast differential settlement causes an increase of track geometrical irregularity, decreasing the comfort level of the passenger, and, in the worst case, can be cause of local failure of the railway line.



The objective of this thesis work is the analysis of available long-term measurements of ballasted track geometrical irregularity profile coming from a set of regional railway lines. Main purposes of the thesis work are:

- select and assess statistical models able to represent the overall status of a branch of a railway line, so as to gather an immediate but meaningful view of the evolution of the status of a railway line;
- extract indicative and meaningful information from the processing of the standard available data, about line geometrical condition;
- Improve the model for the plan and scheduling of future tamping intervention on the railway line.

The proposed work is the continuation of a previous thesis, the aim is to proceed further with new data and to make the analysis more robust and more oriented to a practical use.