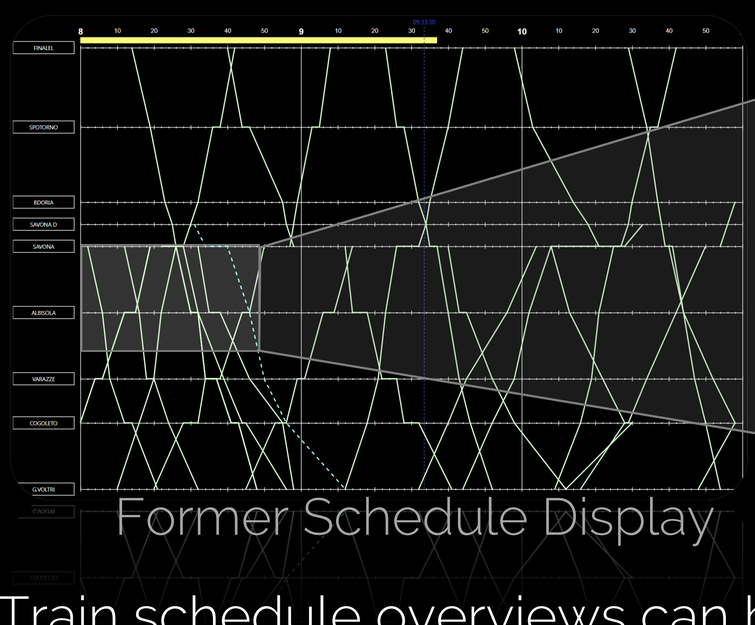
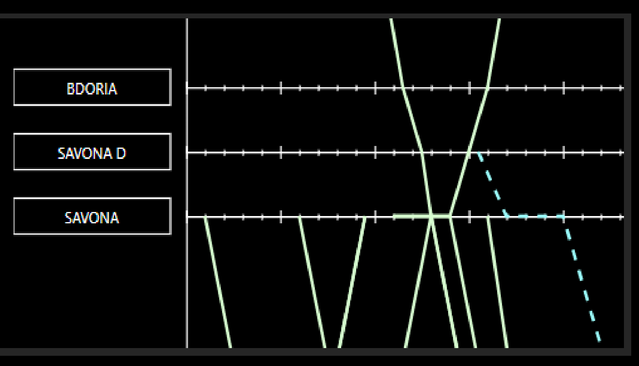
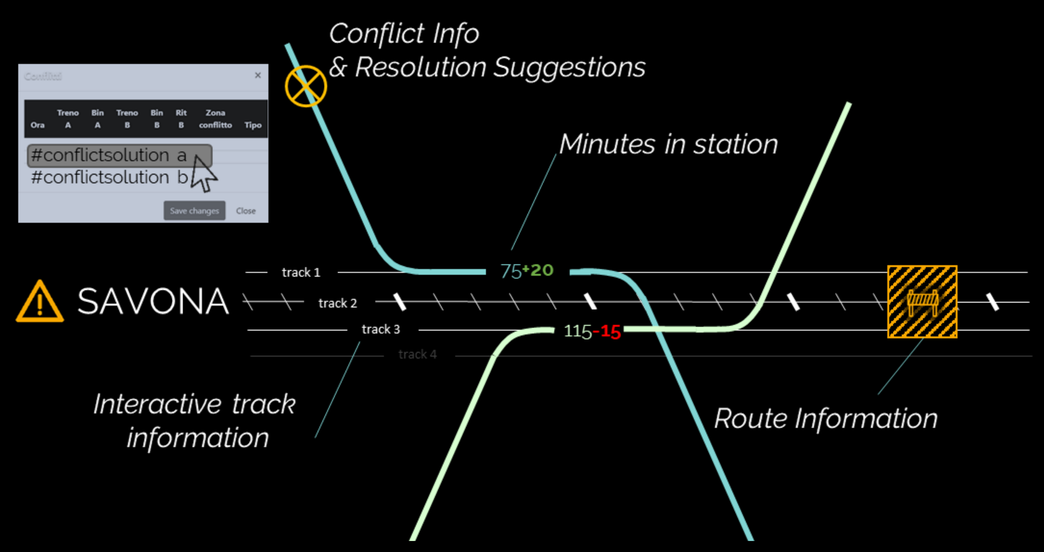
IN2DREAMS Visualization For Train Management Systems: Improving Overviews in Safety-Critical Control Room Environments



Former Schedule Display

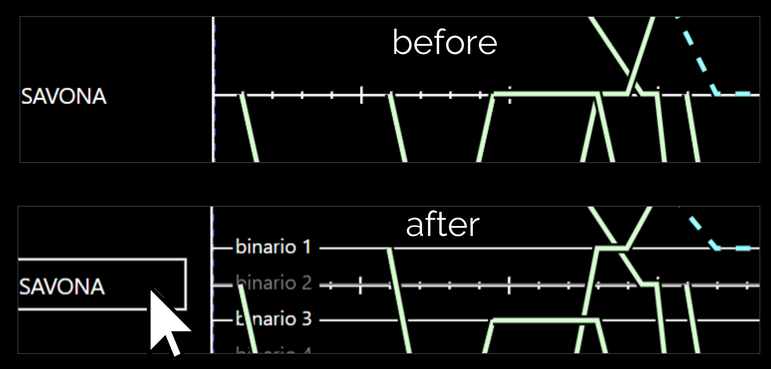


Schedule Detail



Improved Schedule Layout

Train schedule overviews can be used to detect conflicts in train scheduling, but are complex views prone to generate visual clutter. We provide an optimized train development view with improved trajectory layout and added contextual information on used tracks in a station, delays and route information. Hover interactions are employed to provide on-demand track information (right).



Hovering unfolds tracks

Task 1

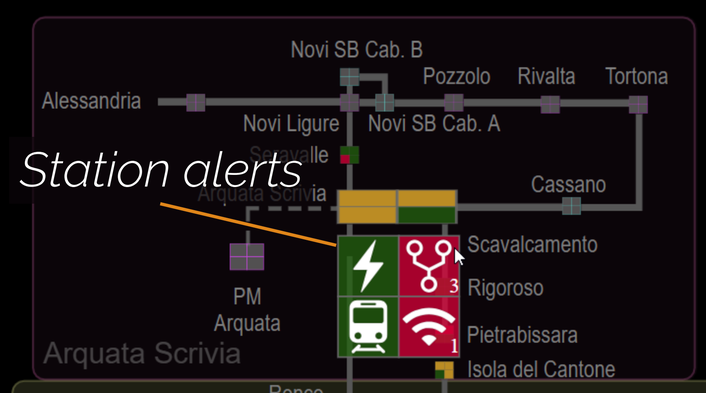
Decision Support System For Railway Conflict Resolution

Task 2

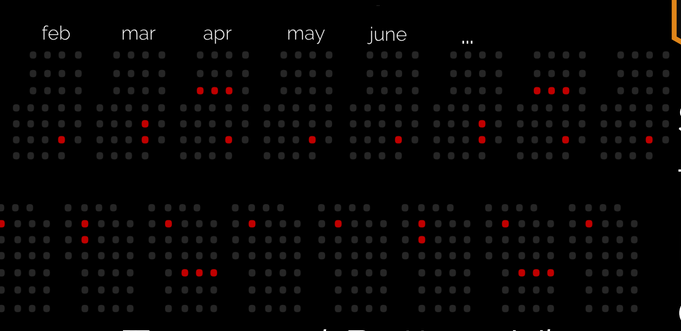
Alert Management and Prioritization System

Task 3

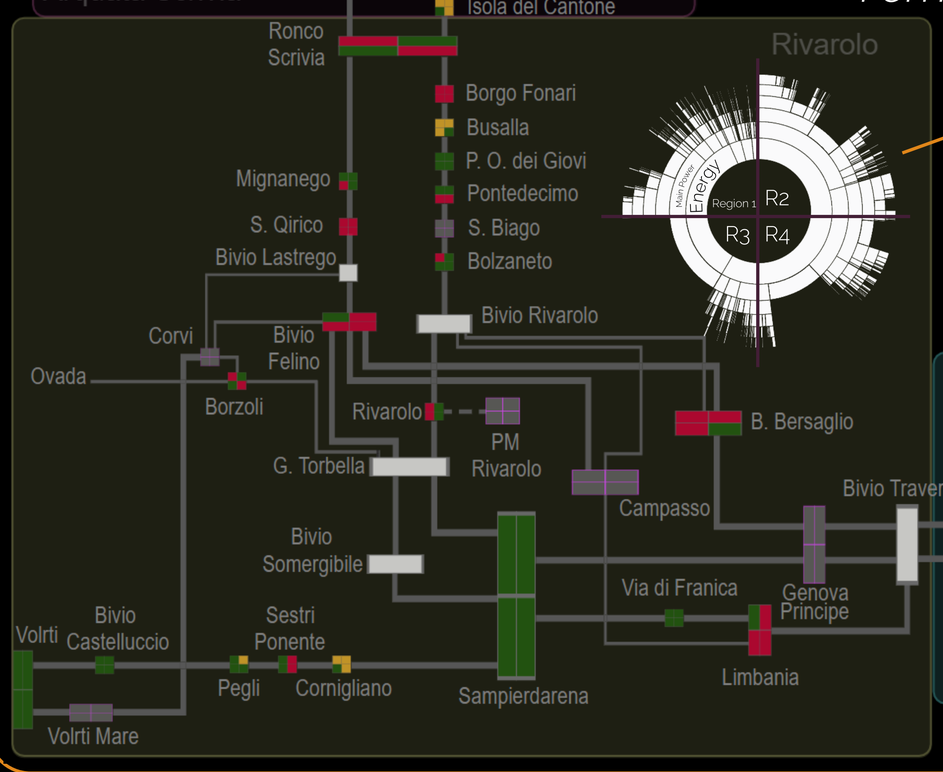
TMS Improvement and Attention Steering for Operators



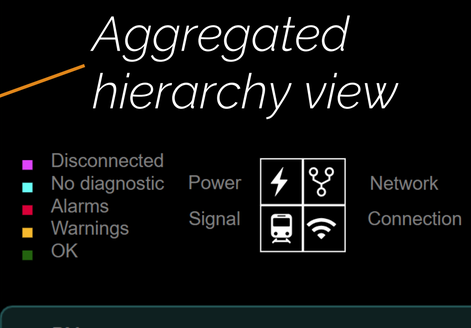
Station alerts



Temporal Pattern View



Aggregated hierarchy view

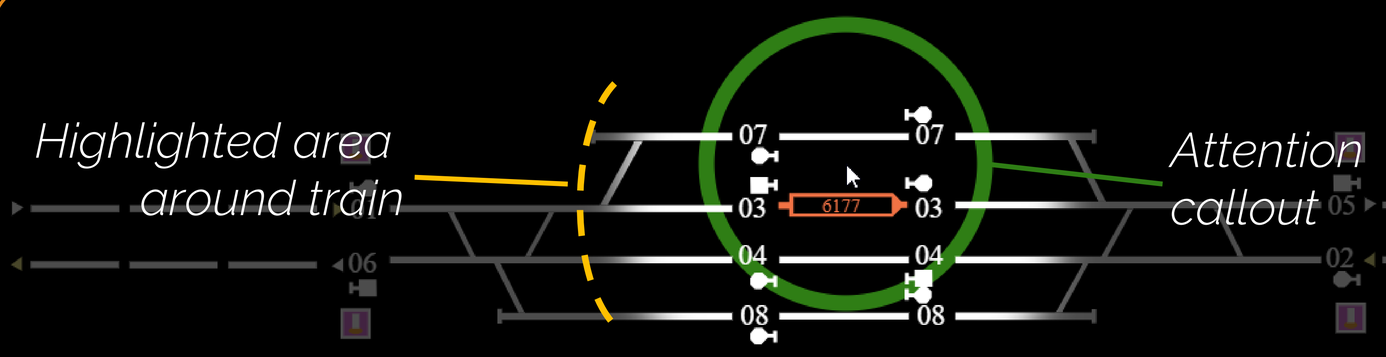


Organizational Region/Unit

Topological Network Map

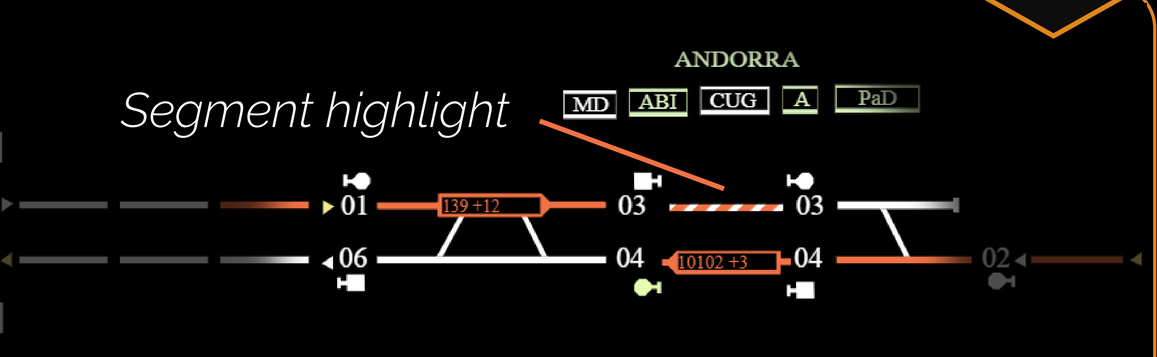
The maintenance alert view shows a semantic hierarchy of alerts for each station on a topological map. The number of alerts, their category, severity and region can be encoded. Additional status icons for stations aid operaters with contextual information. Distances are semi-preserved for efficient maintenance crew allocation.

Highlighted area around train



Attention callout

Segment highlight



Topological train status displays are often complex and cluttered. We provide semantic, context-dependent, interactive highlighting capabilities, allowing operators to concentrate on the important.

Universität Konstanz

Contributors: Eren Cakmak, Giuliano Castiglia, Wolfgang Jentner, Juri Buchmüller, Daniel A. Keim

Shift2Rail

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