



Asset condition Toolkit

2nd Open Workshop
TRA, Vienna 17.04.2018

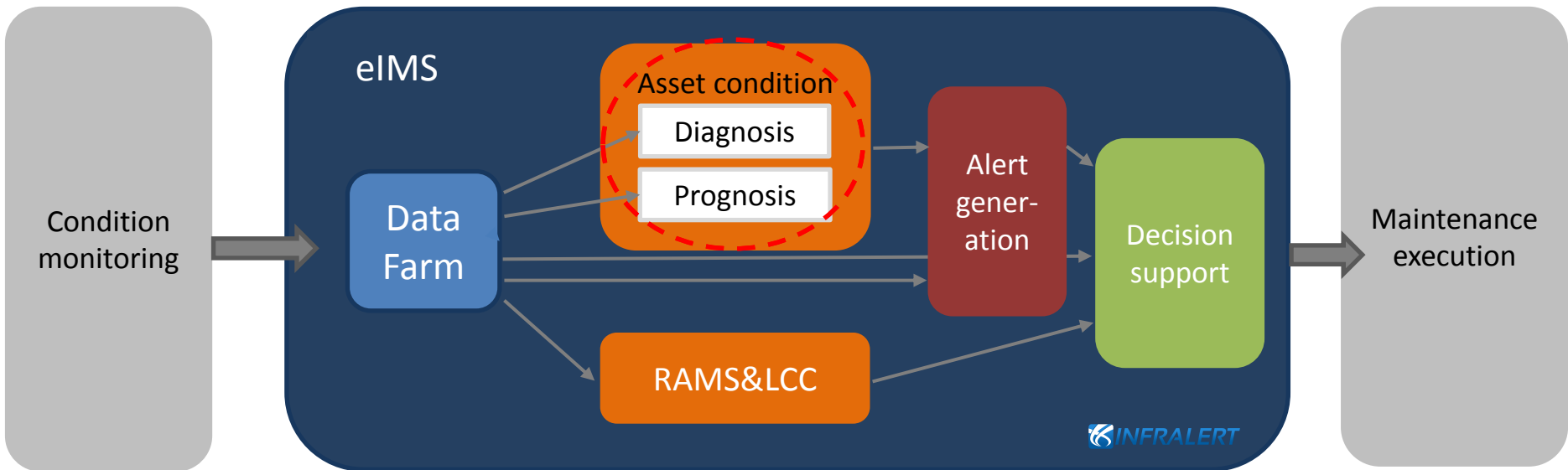
Johan ODELIUS



- Asset condition assessment
 - Conditional information for linear asset
 - Segmentation and feature extraction
- Nowcasting and forecasting
 - Development of hybrid approach that integrates data-driven, symbolic and physical models
- Uncertainty management

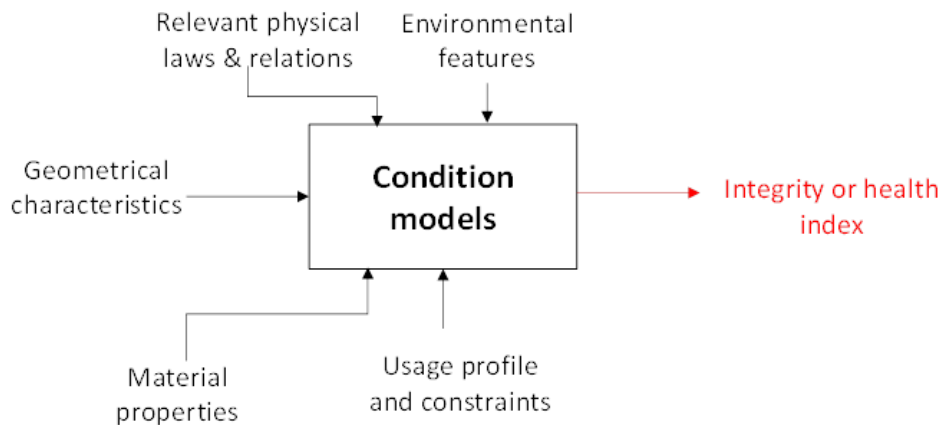


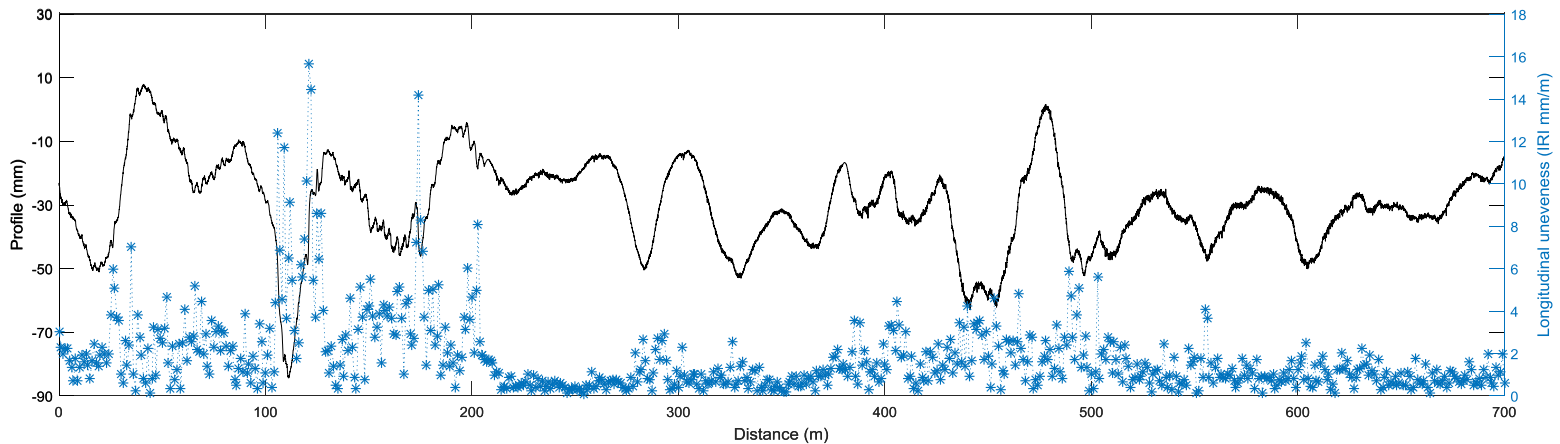
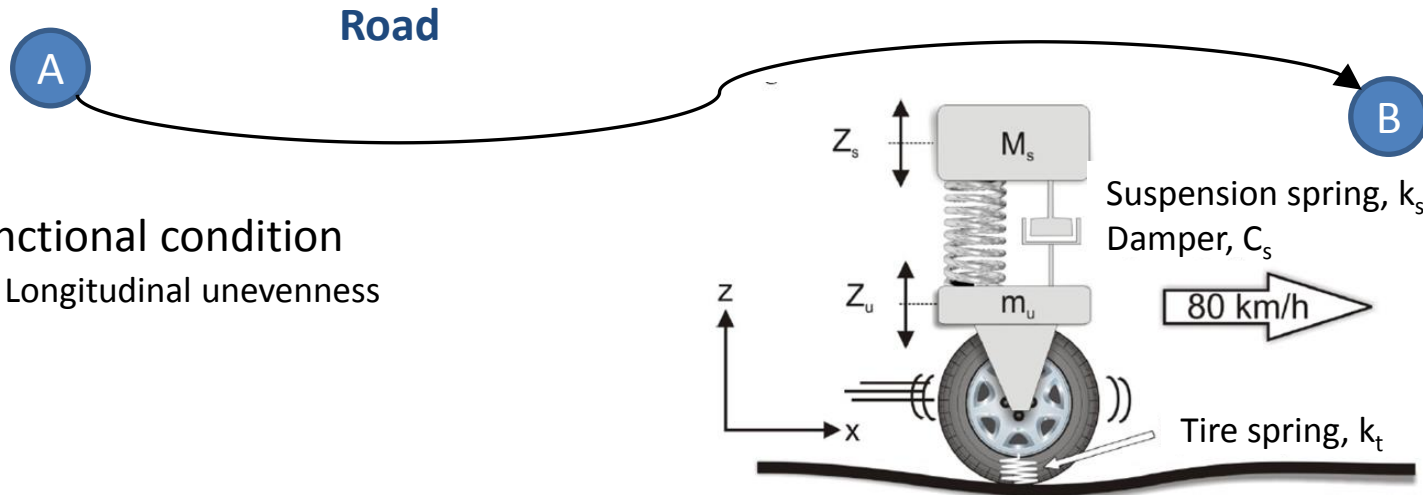
General Overview

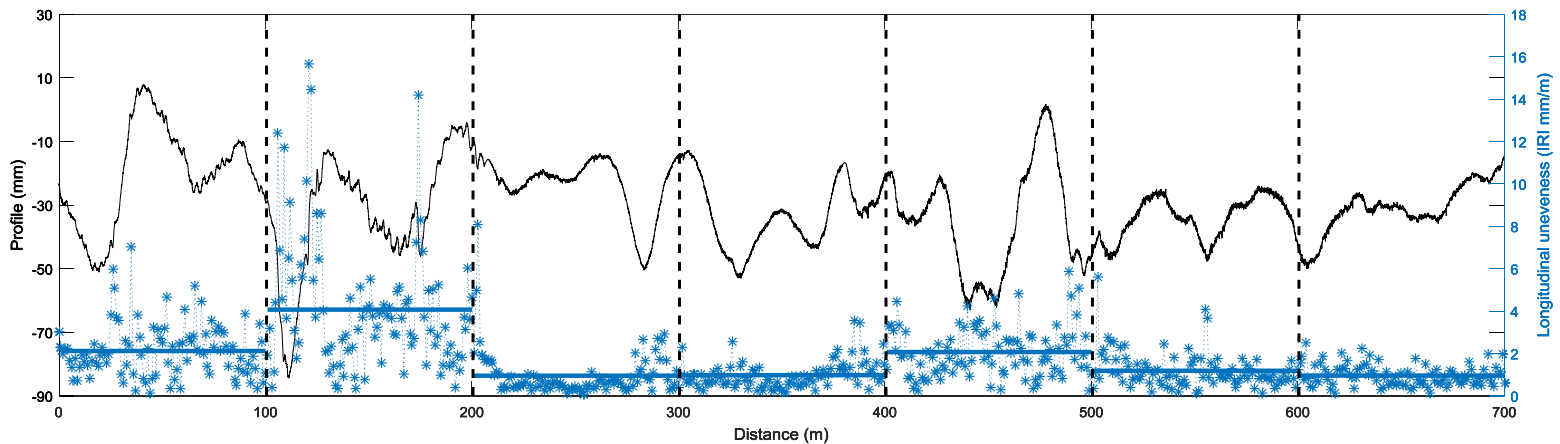
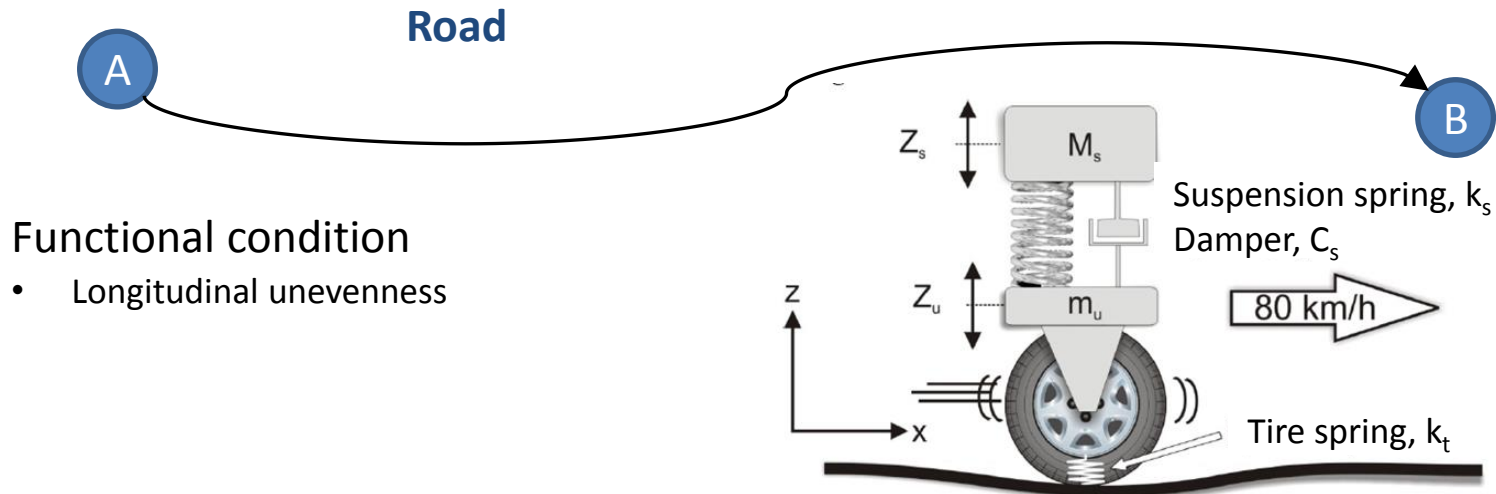


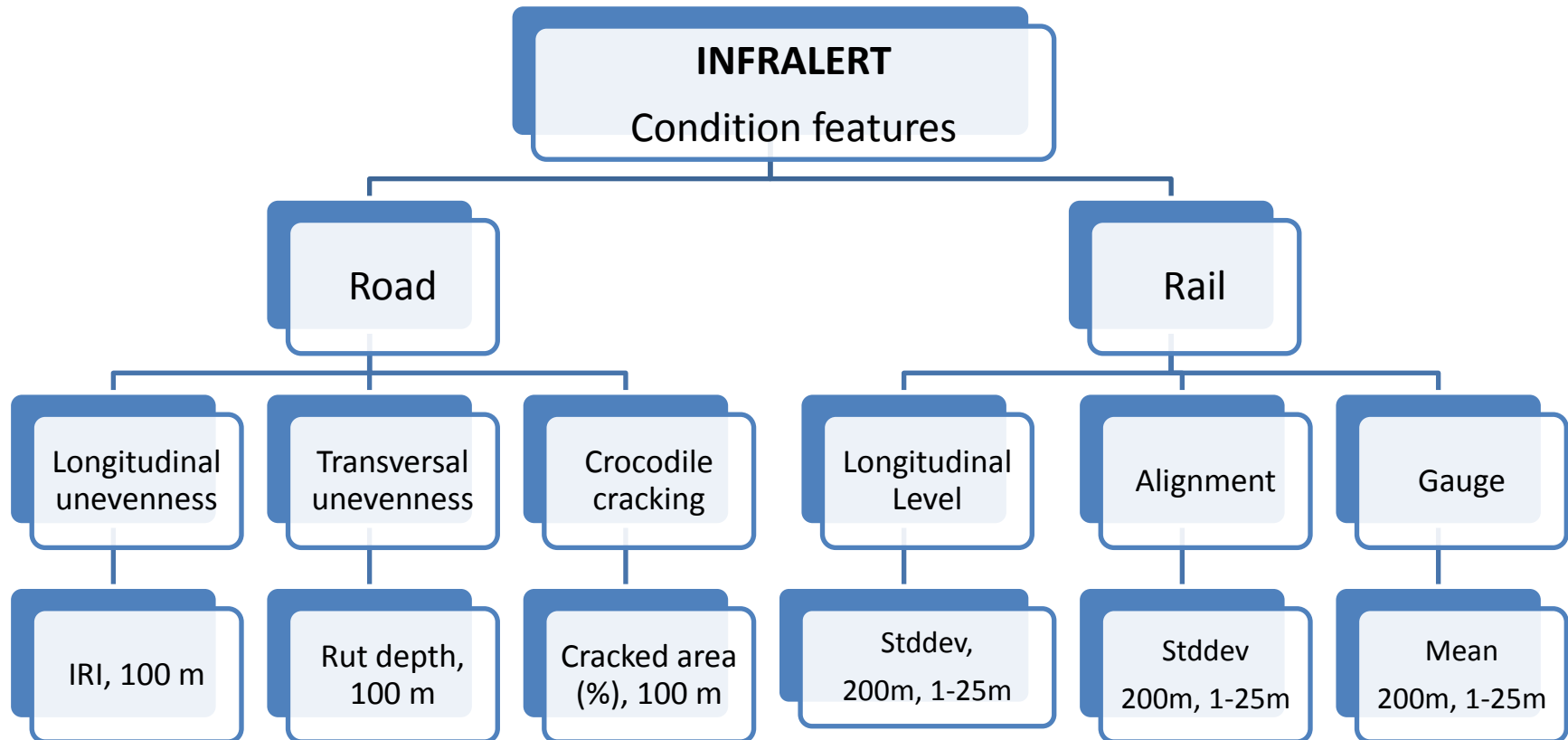
Condition based maintenance modelling of linear assets

- Input variables
- Model estimation and calculation process.
 - Estimation of input variables using statistical concepts, physical theories for component failure and maintenance principles
- Output features
 - Extent of defect such as wear, geometry deviation, profile variation, fatigue and size change (thickness, area or volume).
 - Health indicator
 - Railway: wear index, rail damage index and track geometry deterioration, e.g. settlement.
 - Road: road roughness, rut depth, cracking, and serviceability index.

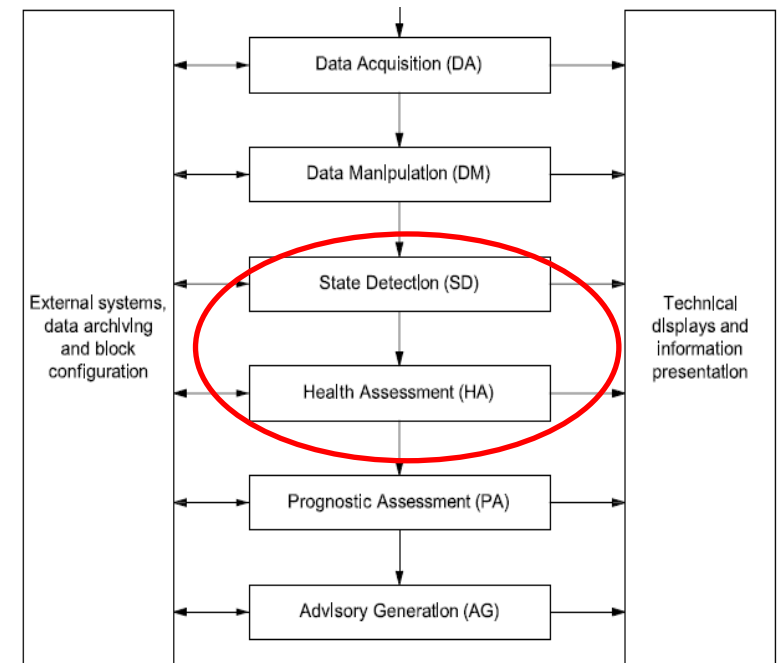




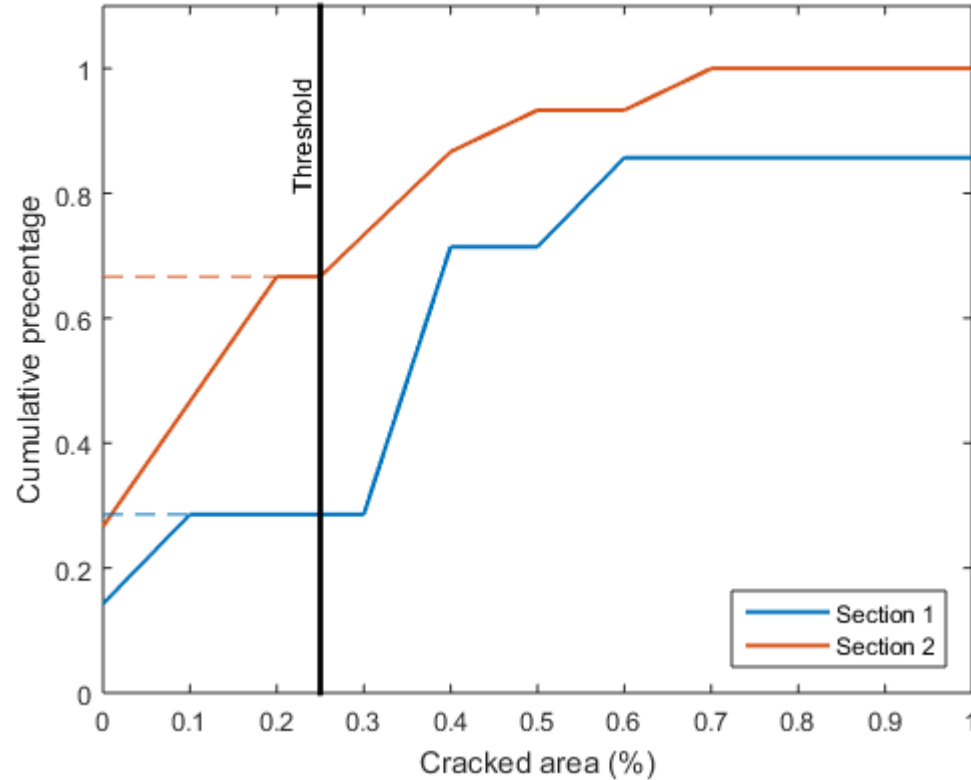
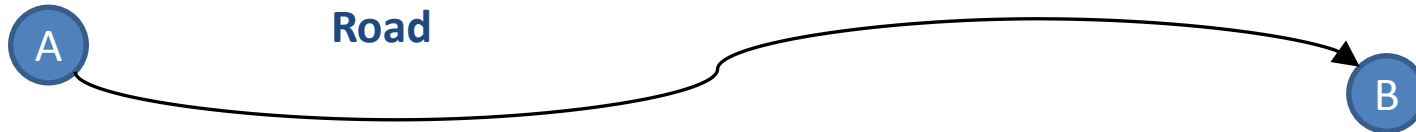


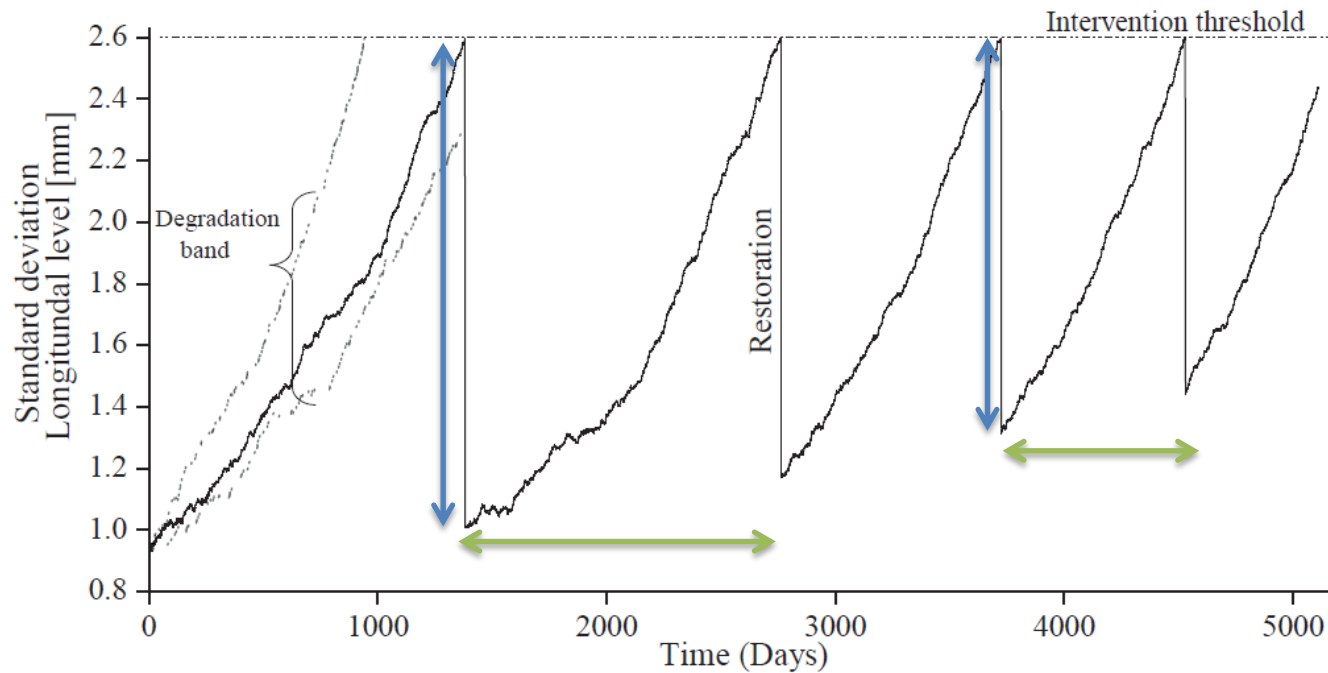


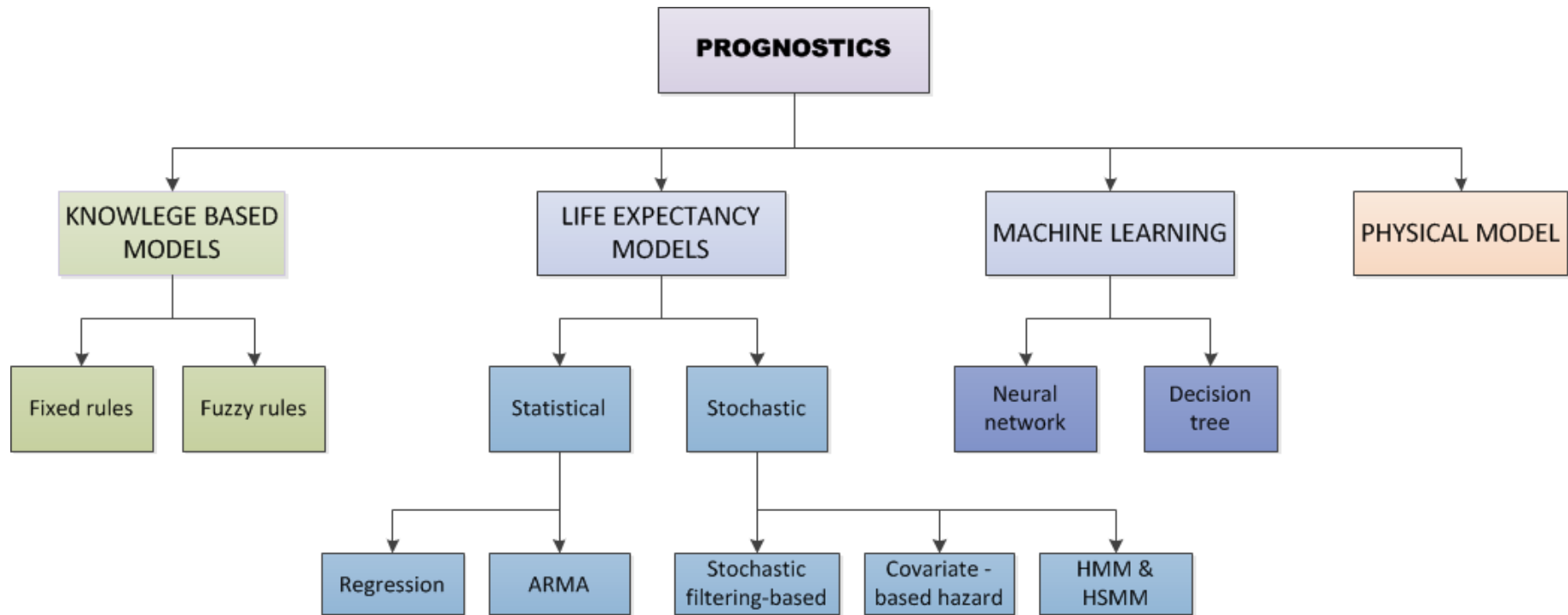
- Present state/health of the asset using statistical and graphical approaches
 - Cumulative plot with condition categories of each segment
 - State in relation to thresholds.



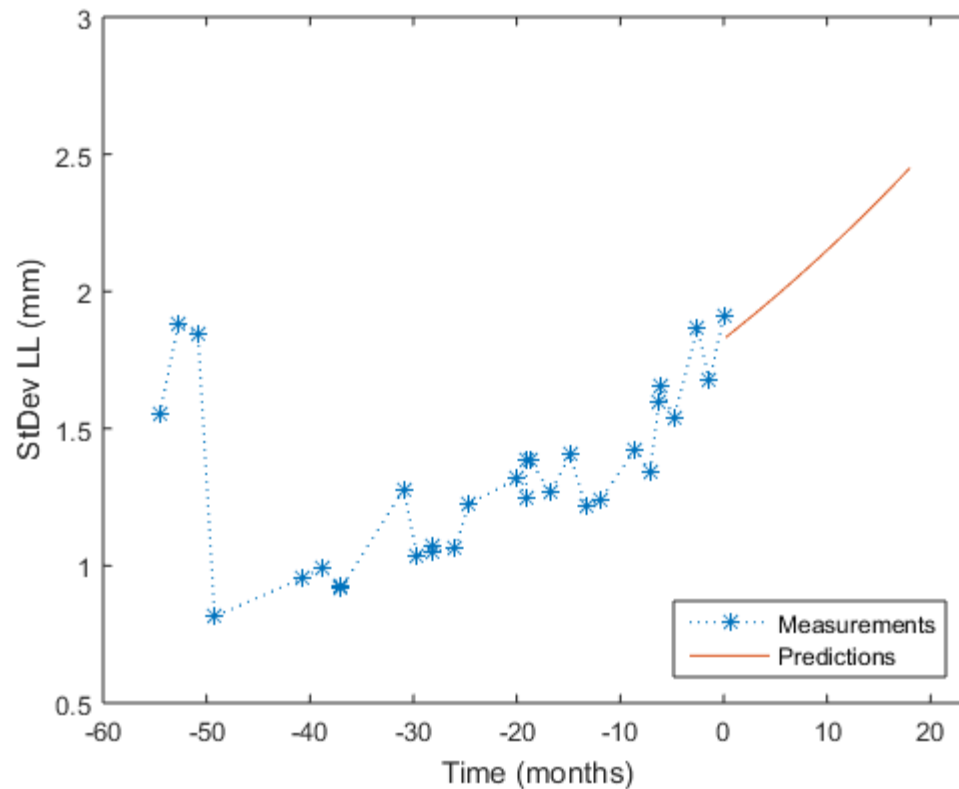
Nowcasting - Result



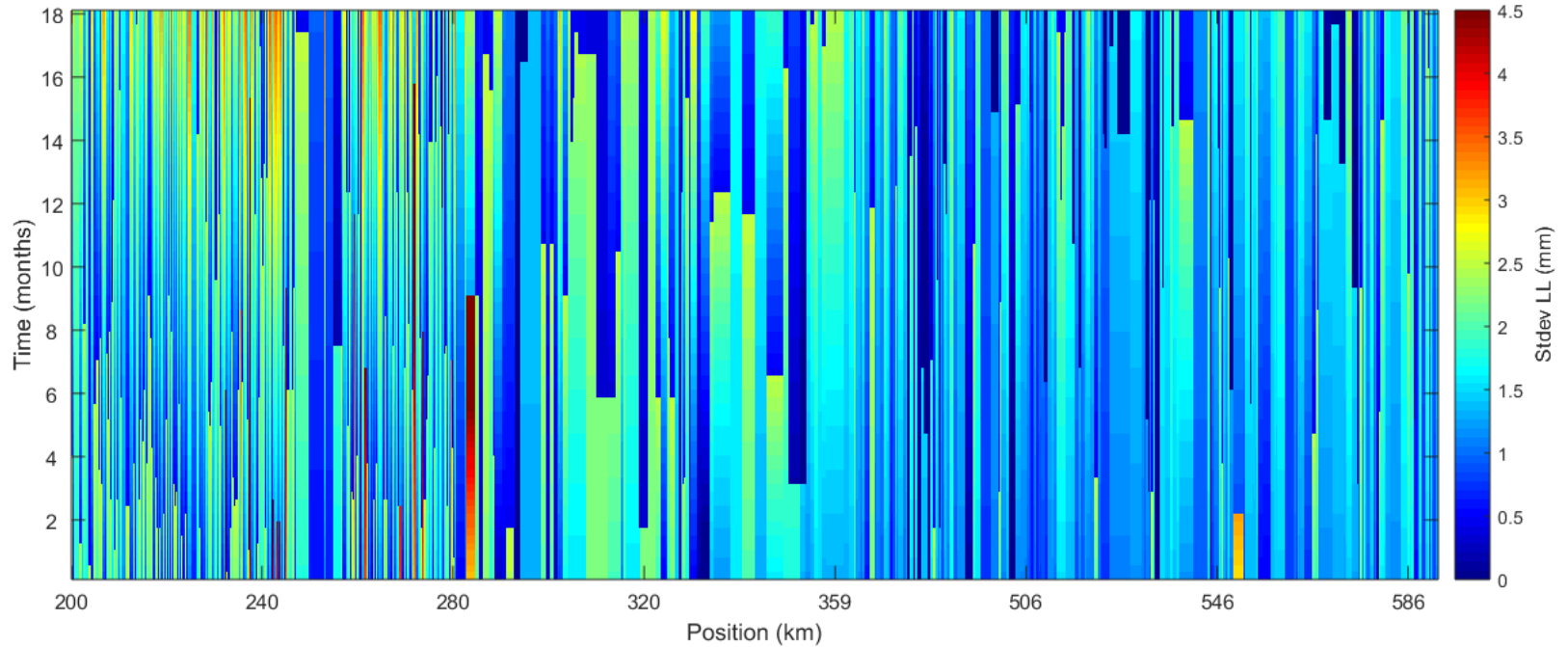


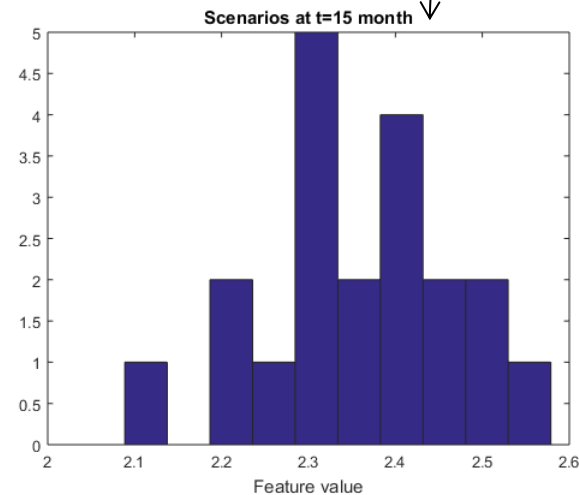
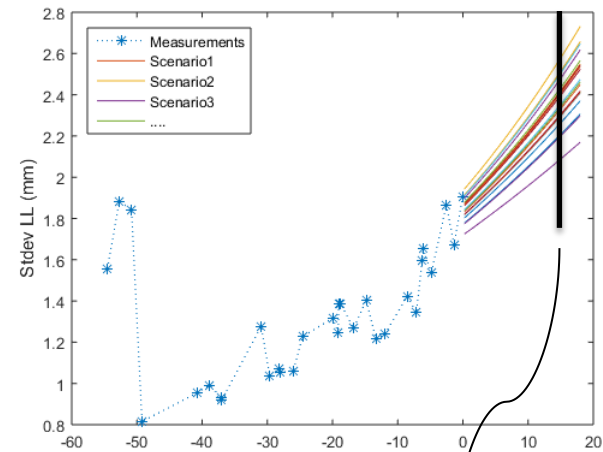
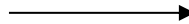
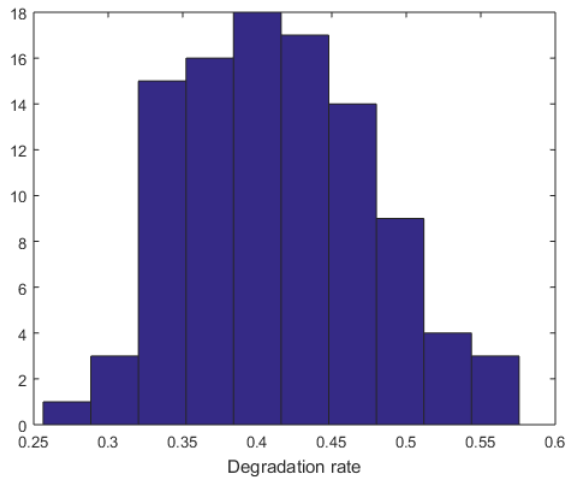


Forecasting - Result



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www.infralert.eu



Johan ODELIUS

johan.odelius@ltu.se

