ANNOUNCING:
2015 Problem Solving Competition

Applying Advanced Analytics to Railroad Problems for Fun and Prizes!

1st Prize $2,000

2nd Prize $1,000

3rd Prize $750

Track geometry analytics
Analyzing track geometry defects is critical for keeping freight and passenger trains moving safely. Understanding when a defect will need to be fixed can help with preventive maintenance planning and reduce the probability of track failures. Track geometry vehicles periodically take track measurements – e.g., alignment, curvature, and cross level – to identify geometric defects. Those defects are classified into two severity levels – red tags and yellow tags. Red tag defects violate Federal Railroad Administration (FRA) track safety standards and must be treated as soon as possible. Yellow tag defects satisfy FRA standards, and railroads are not obligated to fix them. If yellow tag defects are not fixed, they will eventually become red tag defects. Being able to predict yellow tags which are potential turning into red tags, before they are actually measured as red tag defects, allows railroads to more efficiently maintain the rail and remain in FRA compliance.

This challenge is to build a prediction model that allows railroads to predict the degradation of track geometry. Data about potential factors of degradation, such as the extent of measured track defects, amount of traffic, geographical location, kind of geometry defect, will be provided to participants. Participants will be building prediction models able to predict when yellow tags will reach red tag levels, based on recorded yellow/red tags for multiple kinds of track geometry defects in a railway network. The criteria which will be used to evaluate the solutions proposed include the prediction error (false positive/false negative red tag), the solution approach used, the practical applicability, and the required computational time.

Apart from the cash prizes, the first prize winner’s contribution will also be considered for publication in Networks. RAS will write a letter in support of the winning team, if the team wished to publish this work, in hopes that this letter will facilitate the review process.

Visit the competition web site for complete problem details:
http://www.informs.org/Community/RAS/Problem-Solving-Competition