ALPEN-ADRIA UNIVERSITÄT KLAGENFURT

INVITATION TO THE DOCTORAL SEMINAR

Comparison of solution approaches for the propagation of Quality requirements of steering gears

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Chaired by Barbara Kaltenbacher | Department of Mathematics

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https://classroom.aau.at/b/anw-ezd-k9g

ABSTRACT

In the supply chain of the automotive industry the propagation of high quality standards is required. In the daily operations of steering system suppliers, the analysis of End of Line (EOL) vibroacoustic measurements encoded as order spectra for ball nut assemblies (BNA) is indispensable. Our goal is to find quality windows for the given BNA order spectra to detect faulty components. Due to the difficult interpretation of heuristic solutions, we use a Mixed Integer Linear Programming (MILP) formulation to analyze the solution quality of a genetic algorithm for the aforementioned problem. We prepare a carefully constructed benchmark set, which reflects the behavior of real-world EOL order spectra. In the provided computational study, we demonstrate the efficiency of the MILP approach on our benchmark instances with up to 945 order spectra, each consisting of 260 spectral orders.

We hope to see you there!

