REGISTRATION

Please send this registration via e-mail to mdf.seminare@itwm.fraunhofer.de or fax to +49 (0) 631 / 31600-1099 until January 23, 2019. Please note that the number of participants is limited.

VMC® and U·Sim – digital environmental data analysis and usage modeling for vehicle durability

Wednesday, February 6, 2019, 10:00 a.m. to 4:00 p.m.
Fraunhofer-Zentrum, Fraunhofer-Platz 1, Kaiserslautern

☒ Yes, I plan to attend.

☐ No, I cannot attend, but I am interested in receiving further information.

Title, First name, Family name

Company/Institution, Department

Street, Number

Zip code, City

Phone

E-Mail

Date, Signature

INFORMATION

Contact with regard to content

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Location

Fraunhofer-Institut für Techno- und Wirtschaftsmathematik ITWM
Fraunhofer-Platz 1, 67663 Kaiserslautern
www.itwm.fraunhofer.de

Directions: www.itwm.fraunhofer.de/en/contact

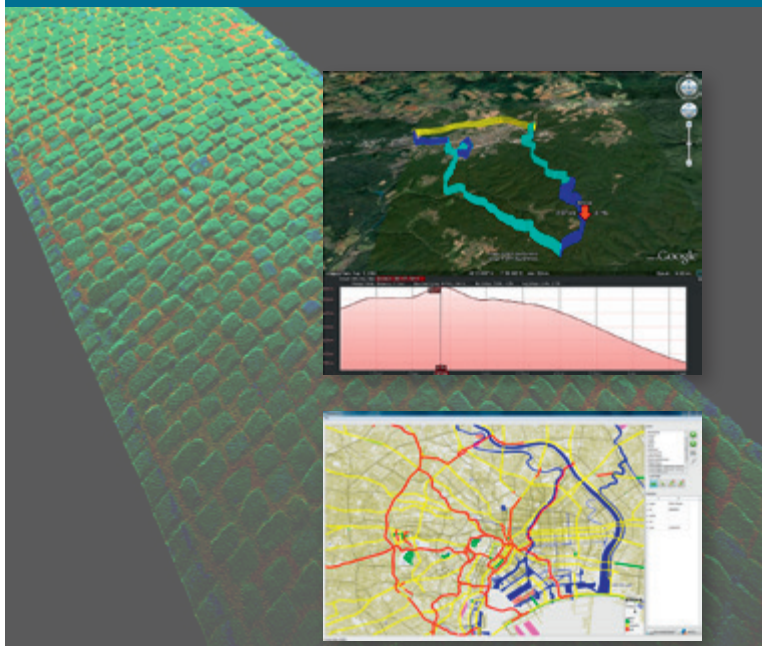
2019_02_06_mdf_flyer-VMC-Technologietag

Fraunhofer ITWM

FRAUNHOFER INSTITUTE FOR INDUSTRIAL MATHEMATICS ITWM

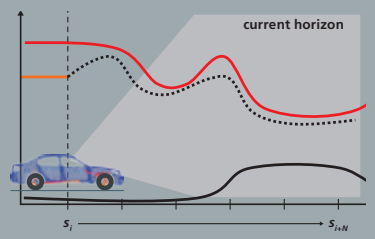
DIGITAL ENVIRONMENTAL DATA ANALYSIS AND USAGE MODELING FOR VEHICLE DURABILITY

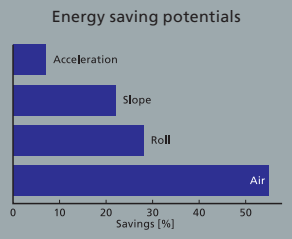
Technology Day on Wednesday, February 6, 2019, 10:00 a.m. – 4:00 p.m., Fraunhofer-Zentrum Kaiserslautern

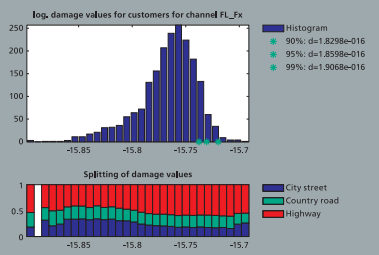


VMC® U·Sim

VMC® AND U·SIM – DIGITAL ENVIRONMENTAL DATA ANALYSIS AND USAGE MODELING FOR VEHICLE DURABILITY







The design and assessment of vehicle components with respect to durability and reliability starts with the description and modeling of the usage variability, which arises due to the combination of different mission profiles or driver behaviour and the varying environmental conditions in different regions of the world. Accordingly, the loads vary considerably and a proper statistical modeling is required. The next step is to derive reference loads which are used within the development process and fundamental for release tests. To this end, measured data is analysed and extrapolated to a given design life based on the classification of factor models (which type of load cases are relevant) and the application of usage models (how often do these load cases occur in a certain customer group). High quantiles of the corresponding distributions are used to define the reference loads.

Fraunhofer ITWM develops and applies methods for supporting that process and provides tailored services and software solutions:

- VMC GeoStatistics enables vehicle independent analysis of different regions or routes. It also supports the planning of measurement campaigns as well as the user group specific generation of thousands of typical routes in any market of the world to provide parameters for the extrapolation of data within U·Sim.
- VMC Simulation calculates speed profiles on arbitrary routes based on driver and vehicle models. It also contains the analysis and generation of road profiles to assess vertical loads.
- VMC GeoLDA maps signals, collected on public roads, to the road network and assigns road properties to signal segments. It handles large data sets automatically and considerably releases the engineer from manual routine work. The analysis of the decomposed data enables a deeper understanding of the important influence quantities and prepares the extrapolation of the data to the entire vehicle life.
- U·Sim complements the VMC approach by extrapolating measured data to a large number of potential customers. Load distributions for specific populations can be derived and compared to each other. Results are presented in various types of plots and exported to Excel format.
- REDAR is a device for acquiring high quality 3D road surface and environmental data. This is of particular interest for company specific reference tracks or proving grounds.

Program (10:00 a.m. – 4:00 p.m.)

- Introduction to software and services
  - VMC (GeoStatistics, Usage Modeler, GeoLDA, Simulation), U·Sim, U·SimOpt, REDAR
- Exemplary use cases
  - Vehicle-independent market analysis and comparison
  - Customer correlated load spectra for drivetrain engineering
  - Identification of road profiles and roughness indicators using vehicle measurements
  - Derivation of load spectra - From measurement campaign design to reference loads and proving ground schedules
- Examples from industry projects

Speakers

- Dr. Michael Burger, Fraunhofer ITWM
- Dr. Klaus Dreßler, Fraunhofer ITWM
- Dr. Sascha Feth, Fraunhofer ITWM
- Dipl.-Math. oec. Michael Lübke, Fraunhofer ITWM
- Dr. Michael Speckert, Fraunhofer ITWM
- Dipl.-Ing. Markus Volmer, Borgward Group AG
- Dipl.-Ing. Thorsten Weyh, Fraunhofer ITWM