REGISTRATION

Please send this registration via fax to +49 (0) 631 / 3 1600-1090 or via E-mail to mdf.seminare@itwm.fraunhofer.de until February 26, 2016. Please note that the number of participants is limited.

Technology-Day on geo-referenced Analysis and Usage Simulation for Vehicle Development
Tuesday, March 8, 2016, 12:00 a.m. to 5:00 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

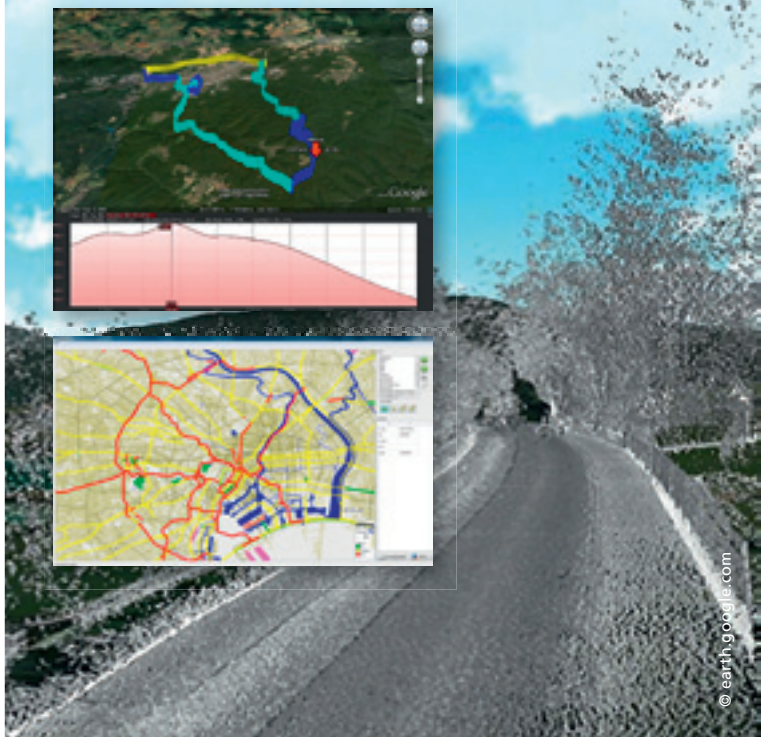
Directions: www.itwm.fraunhofer.de/en/how-to-reach-us

Fraunhofer ITWM

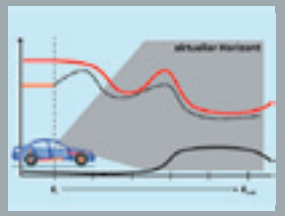
FRAUNHOFER INSTITUTE FOR INDUSTRIAL MATHEMATICS

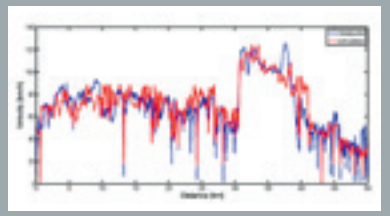
TECHNOLOGY-DAY ON GEO-REFERENCED ANALYSIS AND USAGE SIMULATION FOR VEHICLE DEVELOPMENT

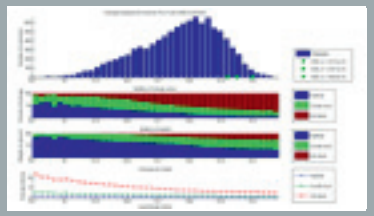
Tuesday, March 8, 2016, 12:00 a.m. to 5:00 p.m.
Fraunhofer-Zentrum Kaiserslautern



TECHNOLOGY-DAY ON GEO-REFERENCED ANALYSIS AND USAGE SIMULATION FOR VEHICLE DEVELOPMENT







Virtual measurement campaign (VMC®) and usage simulation (U·Sim) – combining geo-referenced analysis of road data and usage simulation models for durability and energy efficiency in vehicle development

VMC® supports the statistical assessment of durability loads, fuel consumption, and emission in vehicle development by systematically evaluating geo-referenced data. This complements and enhances the currently used methods and is a big step forward in view of designing vehicle performance for different markets.

With VMC GeoStatistics a vehicle independent analysis of different regions or routes can be performed. The focus is on properties of the road network including curves, altitudes, slopes, traffic signs, traffic, climate etc. This aims at comparing or ranking different markets with respect to their potential impact on durability, fuel consumption, and more general reliability properties e. g. for electronic control units.

The module VMC Speed Profiles complements this analysis with information about the expected longitudinal, lateral or vertical dynamics on the corresponding routes within a region based on simple vehicle models.

An important application of these methods is to analyze, whether the load, fuel consumption, or emission on a given route represents the corresponding quantity of a typical usage vehicle in a certain market.

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The module VMC GeoLDA automatically maps signals, collected on public roads, to the road network and assigns the corresponding road properties to signal segments. That way, the data is decomposed into different operating states (road types …), which helps towards a deeper understanding of the important influence quantities and prepares the extrapolation of the data to the entire vehicle life.

The software U·Sim complements the VMC-approach by taking into account the way vehicles are used. Adding corresponding models for specific customer groups (expressed in the distribution of operating states such as road types, payload, driving style etc.), measured data is extrapolated to a large number of potential customers and load distributions for specific populations can be derived and compared to each other.

The modelling and simulation techniques in exploring the usage variability are accompanied by the possibility to perform 3D measurements of road profiles and environment.

Program (12:00 a.m. – 5:00 p.m.)

- Factor models and usage simulation in vehicle engineering including extrapolation of measurement data to load distributions in the field
- Introduction to VMC GeoStatistics and overview of data and methods
- Introduction to VMC Speed Profiles and overview of data and methods
- Application example: analysis of altitude and slope of routes for drivetrain development
- Map matching and automated data analysis
- Application example: planning and evaluating a measurement campaign in Eastern Europe
- 3D scanning of road profiles and road environment

Speakers

- Dr. Michael Burger, Fraunhofer ITWM
- Dr. Klaus Dreßler, Fraunhofer ITWM
- Dr. Sascha Feth, Fraunhofer ITWM
- Dipl.-Ing. Thomas Halfmann, Fraunhofer ITWM
- Dipl.-Math.oec. Michael Lübke, Fraunhofer ITWM
- Dr. Michael Speckert, Fraunhofer ITWM
- M. Eng. Tim Rothmann, Fraunhofer ITWM
- Dipl.-Ing. Thorsten Weyh, Fraunhofer ITWM