

GRITLAB - successful start for "Digital Twin Networks" conference

"Digital Twins" are currently one of the central topics in the rail sector: The virtual, multi-layered representation of physical objects or systems is considered key for data-based business models. VIRTUAL VEHICLE, Austria's research flagship for virtual development, is dedicating a new, high-profile rail conference to the trend - GRITLAB. The goal behind these new technologies is clear: to make the rail system much more attractive and to score with improved services.

Graz (A), 07.10.2021 – VIRTUAL VEHICLE invited top-class experts on the topic of "Digital Twin Networks" to the Graz event location MP09. The popularity of the event confirms the importance of the topic: the first GRITLAB conference was already fully booked. The name GRITLAB stands for "Graz Railway Intelligence Tech Lab"; here the focal points of digital twins in the railway sector, in simulation and in virtualisation were intensively discussed. For the premiere, top-class keynote speakers from big players such as Deutsche Bahn, Siemens, ÖBB or voestalpine could be won.

European Dimension

The topic of "Digital Twin in Rail Systems" also plays a major role at European level. This was underlined by Giorgio Travaini, Head of Research & Innovation at Shift2Rail, in his presentation. Shift2Rail is a public-private partnership between the European Union and the European railway sector. It is considered one of the largest research and innovation projects and aims to strengthen the competitiveness of the European railway industry. There was particularly great interest in the GRITLAB "Masterclasses", in which specialist topics such as "Digital Twins for switch technology", "Digital Twins for bogies" or "Digital Twins for nationwide roll-out and efficient deployment" were discussed.

New possibilities with Digital Twins

"Digital Twins" are virtual, multi-layered representations of physical objects or systems including the modelling of their function. In addition, they must always be fed with current measurement data of the physical object so that they represent the current object appropriately. The task is, for example, to understand the performance of a plant or a process, to predict it well and thus to be able to optimise it. In this way, better business results can be achieved and the overall performance of a company can be increased. There are hardly any limits: from the machine to the factory, from the vehicle and its driving characteristics to entire infrastructure components or even user groups - everything can be captured by computer and recreated virtually. Developers can then change functions, test new settings and calculate

complex simulations. With conventional methods, this would no longer be possible due to the enormous complexity and amount of data.

Great research potential

Therefore, Digital Twins have the potential to sustainably improve the current rail sector. Major players such as Deutsche Bahn give the topic high priority in their innovation strategies. With GRITLAB, VIRTUAL VEHICLE, Europe's largest research centre for virtual development, offers its comprehensive know-how to the railway industry. In the rail sector, Digital Twins are a key enabler for attractive, reliable and green technologies in mobility, says Managing Director Dr. Jost Bernasch: "In our Rail Systems research area, we focus on simulation, virtual development and optimisation in the field of digital operation, which has attracted international attention. With almost 20 years of experience in this field, we now see Digital Twin Networks as an essential building block for attractive and sustainable mobility. Together with our partners, we are working towards the long-term goal of realising clean, efficient and safe transport solutions based on digital innovations." The great interest in the first GRITLAB conference confirms the research centre's work on Digital Twins - work is already underway on the second edition for next year.

VIRTUAL VEHICLE – Accelerating Innovation

Virtual Vehicle Research GmbH, based in Graz, is Europe's largest research centre for virtual vehicle development with around 300 employees. The research focus is the consistent virtualisation of vehicle development in the automotive and railway industries. The close linking of numerical simulations and hardware tests leads to a comprehensive HW-SW overall system design and to the automation of test and validation procedures at a defined quality level. The focus on industry-oriented research makes VIRTUAL VEHICLE the innovation catalyst for vehicle technologies of the future.

VIRTUAL VEHICLE is the largest COMET-funded research centre in Austria and cooperates with around 100 national and international industrial partners (OEMs, tier-1 and tier-2 suppliers and software providers) and more than 40 national and international scientific institutions.

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Pictures:



Picture 1: Giorgio Travaini

Head of Research & Innovation von Shift2Rail

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Picture 2: Giorgio Travaini

Head of Long Distance Passenger Services & New Rail Business at ÖBB

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