

MUNER – Italian Motor Valley Excellence for Education and Innovation in Automotive and Sustainable Mobility

December 8th, 2021 @ Amphitheater - Italy Pavilion, Expo 2020
Dubai



Learning by Doing and Interactive Innovation with MUNER - Motorvehicle University of Emilia-Romagna. Assemble and experience in Augmented Reality a FSAE racing car or motorcycle together with the best students and educators of the Italian Motor Valley.

During the “Learning by doing” experience, visitors will wear last generation helmets for augmented reality, sanitized in compliance with the anti COVID-19 regulations, and will be guided inside a virtual space where to assemble a FSAE racing car with a fully electric or hybrid powertrain or an electric racing motorcycle. Transported to the heart of the Motor Valley, where the most prestigious vehicles in the world are built, visitors will be able to appreciate the main differences between the architectures, understand how they work and touch the flow of energy generated by the engine, following it from the source to the road. Visitors will also experience, in a true state-of-the-art anechoic chamber, the NVH behaviour of the vehicles, reading the graphs produced during the tests and comparing alternative design choices.

Program

December 8th, 2021

- **10:30 – 10:40 (Gulf Standard Time - GST, UTC +4)** “Introduction to MUNER - Motorvehicle University of Emilia-Romagna” by Dr. Leonardo Guglielmetti and Prof. Francesco Leali
- **10:40 – 10:50** “FSAE and Motostudent: a learning by doing experience at MUNER” by Prof. Nicolò Cavina
- **11:00 – 11:45*** “Learning by doing Augmented Reality Experience” by Andrea Santoni, Mattia Battarra, Andrea Daicampi, Francesco Paris, Samuele Piccinini, Pietro Canuti, Valerio Mangeruga, Matteo Prati
- **11:55 – 12:05** “FSAE at MUNER: birth of a racing vehicle” by Prof. Matteo Giacopini, Davide Zecca
- **12:05 – 12:15** “The silent development: NVH in an anechoic chamber” by Prof. Emiliano Mucchi

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- **13:30** M-Eating Italy Restaurant, **Cibus Pavilion**, Expo Dubai: Luncheon for authorities, professors and students of the UAE and Muner to network and discover the uniqueness of its educational program.

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- **15:00 – 15:10 (Gulf Standard Time - GST, UTC +4)** “Introduction to MUNER - Motorvehicle University of Emilia-Romagna” by Dr. Leonardo Guglielmetti and Prof. Francesco Leali
 - **15:10 – 15:20** “FSAE and Motostudent: a learning by doing experience at MUNER” by Prof. Nicolò Cavina
 - **15:30 – 16:15*** “Learning by doing Augmented Reality Experience” by Andrea Santoni, Mattia Battarra, Andrea Daicampi, Francesco Paris, Samuele Piccinini, Pietro Canuti, Valerio Mangeruga, Matteo Prati
 - **16:25 – 16:35** “FSAE at MUNER: birth of a racing vehicle” by Prof. Matteo Giacopini, Davide Zecca
 - **16:35 – 16:45** “The silent development: NVH in an anechoic chamber” by Prof. Emiliano Mucchi

December 9th, 2021

- **10:30 – 10:40 (Gulf Standard Time - GST, UTC +4)** “Introduction to MUNER - Motorvehicle University of Emilia-Romagna” by Dr. Leonardo Guglielmetti and Prof. Francesco Leali

- **10:40 – 10:50** “FSAE and Motostudent: a learning by doing experience at MUNER” by Prof. Nicolò Cavina
 - **11:00 – 11:45*** “Learning by doing Augmented Reality Experience” by Andrea Santoni, Mattia Battarra, Andrea Daicampi, Francesco Paris, Samuele Piccinini, Pietro Canuti, Valerio Mangeruga, Matteo Prati
 - **11:55 – 12:05** “FSAE at MUNER: birth of a racing vehicle” by Prof. Matteo Giacopini, Davide Zecca
 - **12:05 – 12:15** “The silent development: NVH in an anechoic chamber” by Prof. Emiliano Mucchi
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- **14:00 – 14:10 (Gulf Standard Time - GST, UTC +4)** “Introduction to MUNER - Motorvehicle University of Emilia-Romagna” by Dr. Leonardo Guglielmetti and Prof. Francesco Leali
 - **14:10 – 14:20** “FSAE and Motostudent: a learning by doing experience at MUNER” by Prof. Nicolò Cavina
 - **14:30 – 15:15*** “Learning by doing Augmented Reality Experience” by Andrea Santoni, Mattia Battarra, Andrea Daicampi, Francesco Paris, Samuele Piccinini, Pietro Canuti, Valerio Mangeruga, Matteo Prati
 - **15:25 – 15:35** “FSAE at MUNER: birth of a racing vehicle” by Prof. Matteo Giacopini, Davide Zecca
 - **15:35 – 15:45** “The silent development: NVH in an anechoic chamber” by Prof. Emiliano Mucchi

To sign up click [here](#).

REMOTE ATTENDANCE

*Do you have a SteamVR compatible Virtual Reality headset? Go to <http://www.motorvehicleuniversity.com>, download the installer program “MUNER VR Experience Dubai 2020.exe” and follow instructions for installation and set-up.

Minimum requirements:

- SteamVR compatible Virtual Reality headset (e.g. HTC Vive, HTC Vive Pro, Oculus Rift S, Oculus Quest with Link, Oculus Quest 2 with Link, Any Mixed Reality VR headset)
- Workstation
 - Operative system: Windows 10 or superior
 - Graphic card: NVIDIA GTX 1060 or superior, AMD Radeon RX 480 or superior
 - CPU: Intel i5-4590 or superior, AMD Ryzen 5 1500X or superior
 - RAM: 8GB or more

MUNER experience will be streamed live on:

<https://www.youtube.com/channel/UCqQ0DiLr148WrsN69NWKplvQ>

Join and enjoy MUNER Learning by Doing and Interactive Innovation experience!

Project Scientific Board - bio

Francesco Leali (UNIMORE)

Full professor of Design and Methods of Industrial Engineering, he holds a PhD and a Degree in Mechanical Engineering from the University of Modena and Reggio Emilia (UNIMORE), where he teaches in the Bachelor Degree Programs in Mechanical Engineering, Vehicle Engineering and Computer Engineering and in the Master's Degree Programs in Vehicle Engineering, Advanced Automotive Engineering, Electric Vehicle Engineering.

He is the president of the Master's Degree in Advanced Automotive Engineering, the coordinator of the Interuniversity Committee of the MUNER Association (Motorvehicle University of Emilia-Romagna) and the coordinator of the "Automotive Academy UNIMORE" strategic line of the University of Modena and Reggio Emilia. He is also a member of the Scientific Council of the National Technological Cluster Transport Italy 2020 and a member of the Technical Committee 2.4 PIARC Italy (World Road Association) - 2020-2023 framework. He acted as an expert in the Commission of the "Ministry of Education, University and Research" for the elaboration of the guidelines for the National Research Plan 2020/2027 (PNR), theme Sustainable Mobility.

Nicolò Cavina (UNIBO)

Nicolò Cavina received the Ph.D. degree in Mechanical Engineering – Energy Systems, from the University of Bologna, Italy, in 2002. He is currently a Full Professor with the University of Bologna. He has authored/co-authored more than 100 scientific papers in refereed journals and conferences, and several industrial patents. His current research interests include testing, modeling and control of internal combustion engines and hybrid powertrains, energy management of hybrid and electrified vehicles based on connectivity and digitalization, alternative and synthetic fuels, Rapid Control Prototyping and HiL/SiL technologies. He is Associate Editor for the SAE International Journal of Electrified Vehicles, ISSN 2691-3747, and he's serving as Editor for the Journal Vehicles, ISSN 2624-8921. He is the Faculty advisor of the Formula SAE/MotoStudent Projects of the University of Bologna, and member of the Board of SAENA (SAE Naples Section, Italy).

Since 2018 he is the University of Bologna Rector's Delegate for Higher Education and the Coordinator of the inter-university PhD Course in Automotive Engineering for Intelligent Mobility. He's serving as the Delegate of the University of Bologna in the Scientific Council of the National Technological Cluster Transport Italy 2020, in the *European Green Vehicles Initiative Association* (EGVIA), in the Technical-Scientific Committee of ART-ER (Attractiveness Research Territory, the Emilia-Romagna region Joint Consortium), and in the Governing Board of "Fondazione Ducati", Ducati Motor, Italy.

Emiliano Mucchi (UNIFE)

Degree in Mechanical Engineering (cum laude) in 2003 and Ph.D in Mechanics of Machines on 2007 at the University of Ferrara. Assistant professor at the University of Ferrara from 2010 to 2017. Associate Professor at the University of Ferrara from 2018. His scientific activity is mainly focused on the field of Noise and Vibrations of Machines, with particular reference to elastodynamic models, condition monitoring, diagnostics and experimental vibration measurements. Tutor of 5 PhD students, supervisor of more than 90 theses of students belonging to the Mechanical Engineering Degree. In 2005 and 2007 he was guest at the Katholieke Universiteit Leuven addressing researches on novel approaches for simplified FE model and vibro-acoustic experimental analyses in helicopters. Member of the Scientific committee of international conferences. Reviewer for the most important journals and conferences in the field of Mechanics of Machines and Vibration (about 20 revisions each year). Person in charge of 5 national and international peer review projects in the last 10 years. Person in charge of about 40 research projects with private companies in the last 5 years. Invited lectures in 7 workshops and conferences in the last 10 years. Author and co-author of 90 papers published in International Conference Proceedings, National and International Journals. Member of the Editorial Board of 5 International Journals.

Main research activities:

- Mechanical system modelling for the identification of noise and vibration sources in order to improve the global dynamic behaviour of the system.
- Condition monitoring, diagnostics and quality control based on vibration and acoustical analyses.
- Noise source localization by means of advanced transfer path analysis and acoustic holography.
- Vibro-acoustic optimization of mechanical structures

Carlo Concari (UNIPR)

Carlo Concari is an associate professor at the University of Parma and carries out research in the following scientific disciplinary sector: Converters, Machines and Electrical Drives.

His research activity includes the modeling and design of power converters and electric drives for applications ranging from electric and hybrid traction systems, industrial automation and home appliances, to grid-connected power converters for conversion from power sources and renewable energy. He also deals with diagnostics of electric motors and drives. Recently, he has been involved in the application of wide-bandgap power devices (SiC, GaN) in converters for automotive, aerospace and renewable energy applications.

He holds the following courses:

- Principles and Applications of Electrical Engineering (9 CFU) - Degree Course in Computer, Electronic and Telecommunication Engineering

- Electrical Drives for Automation (9 CFU) - Master's Degree Course in Electronic Engineering
- Dynamics and Compliant Control of Electric Vehicles Part II (3 CFU) - Master's Degree in Electric Vehicle Engineering (MUNER)

Leonardo Guglielmetti (MUNER/FERRARI)

Leonardo Guglielmetti was appointed as Ferrari S.p.A. Training Manager starting in October 2016 and MUNER Coordinator in 2017.

He was formerly Ferrari's Head of Engine Assembly Area from November 2013. Before joining Ferrari, he held a number of increasingly important production roles at Brembo S.p.A., becoming Production Manager at Brembo Czech s.r.o. and Husqvarna Motorcycles Production Manager in the BMW Group.

He graduated in Mechanical Engineering from the Politecnico di Milano.