

# STUDY SEMINAR

Saturday, November 8th, 3 p.m.

## Monitoring physiological signals and human-machine dynamics in motorcycle Grand Prix racing: rationale and challenges

Dr. Luigi Yuri Di Marco, Eng., PhD

Final remarks by Enrico Al Mureden

holder of the course "Product safety, product liability and automotive" in UNIMORE

### Motor Valley Accelerator

Via Selmi 15, Modena - [MS Teams Live-stream](#)

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**Abstract:** Grand Prix bikes are equipped with multiple sensors to monitor their behaviour. Similarly, race gear manufacturers exploit advanced wearable sensors to measure biological signals such as local skin temperature and moisture. These monitoring strategies are key to improving on-track performance. In recent years, physiological variables such as heart rate, eye movements and blinking, have been experimentally added to the mix to improve our understanding of how the body reacts to race-induced stressors. This seminar discusses the interests and challenges of combined physiological and human-machine dynamics monitoring. By increasing our understanding of functional load, crash dynamics, and exertional syndromes, this monitoring approach could help improve off-track training programs, "fitness to ride" assessment, and reduce the incidence or severity of chronic conditions.

**Speaker profile:** Luigi Yuri Di Marco received his Laurea degree in Electronic Engineering (1996) and PhD in Biomedical Engineering (2012) from the University of Bologna, Italy. He has worked as R&D software engineer for train traffic control (1998-2001), and for intensive care and ambulatory ECG monitoring (2001-2009). Following his PhD he joined the University of Newcastle, UK (2011-12) to work on cardiovascular signal processing at the Institute of Cellular Medicine, and later joined the University of Sheffield, UK (2013-2015) to work on vascular dysfunction in neurodegenerative diseases. At present, he is pursuing a degree in Medicine and Surgery at the University of Parma, Italy.