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**Invited Talk**  
**Software Engineering in the Automotive Industry:**  
**Car Mass Market and Motorsport**

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**Abstract**

Automotive software is increasingly crucial in both the car mass market industry and the motor sport sector, despite their distinct differences in goals and environmental constraints. The primary challenge lies in abstracting and virtualizing the core hardware functionalities embedded in vehicle architecture into a software layer. However, the software development process follows different paradigms and methodologies for each sector. In the car mass market industry, challenges include varying country regulations (e.g., data privacy, cybersecurity, safety), budget constraints, and economies of scale. Modern vehicles are equipped with software-driven features that enhance safety, such as lane departure warnings and automatic emergency braking. Software also enables advanced infotainment systems, navigation, and connectivity features, improving the overall user experience. The development of autonomous vehicles relies heavily on sophisticated software to process data from sensors and make real-time decisions. The motor sport sector is characterized by specific conditions such as FIA regulations, a high degree of repeatability in race conditions, and professional drivers. In this sector, automotive software, through artificial intelligence and neural networks, primarily aims to optimize engine performance (hybrid or fully electric) and battery management. Knowledge transfer between these two worlds is fundamental to accelerating evolution and enhancing mobility in modern society.

**About the Speaker**

Luca Cecati is currently an Audit Manager within the Tech Audit Discipline, with global responsibilities for developing risk assessments and conducting multiple audits across regions, focusing on software and hardware components developed for vehicles in the mass market. My journey began at Stellantis (formerly FCA) in March 2016, where I held the role of Audit Manager. I leveraged my prior expertise acquired through PwC's risk assurance and consulting services, primarily in the Banking, Oil & Gas, and Telco sectors. I graduated with honors in Computer Science from the University of Bologna, with a degree thesis on "Project Management Office and The Earned Value Method." Today, my main areas of focus include compliance with UN R156 regulation through a Software Update Management System, Over-the-Air Software Updates, Agile Software Development, and Software Prioritization and Backlog Management.

