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Fundamentals of vehicle attributes balancing on electric vehicles

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Engineering criteria and guidelines have been developed and consolidated over the years to develop a good car according to the target market and customer requirements. These receipts worked well with reasonably stable boundary conditions, linear forecast on requirement and customers' expectations. Moving to the future, looking into the electrification, increased on-board electronics, autonomous driving and connectivity, there will be somehow impact on users' perception and expectation. While the whole future of mobility is clearly shifting, the need of a fundamental excellence in the dynamic experience is unchanged. There will always be the need for cabin comfort; quietness, temperature control, smooth ride, convenience and safety feeling. All at minimum energy cost. The expectation is indeed increasing. The proposal of this presentation is to discuss the successful vehicle development under the perspective of new energy vehicles. It's about the challenges on application of lightweight strategies, the increased demand on thermal integration, specific components and software integration. It will also be presented the methodologies, test and simulations available to support a good architecture and conscious balance of vehicle attributes. It's about setting cross-attributes balancing as an early development strategy as opposed to a late trade-off decision.

Biography

Alexandre Nunes pursued his Bachelor's Degree in Physics and a Master's Degree in Acoustics. He is an Associate Director for Vehicle Attributes at NIO (Shanghai based Electrical Vehicle Company) working in Vehicle Integration and Development for over 20 years. He has guided over 30 global projects with different levels of requirements and markets (Asia, South America, North America and Europe). He is a Senior Specialist in NVH (Noise Vibration and harshness) with several papers published and presentations in international forums. Since 2014, he is dedicated to electrical vehicle development.

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