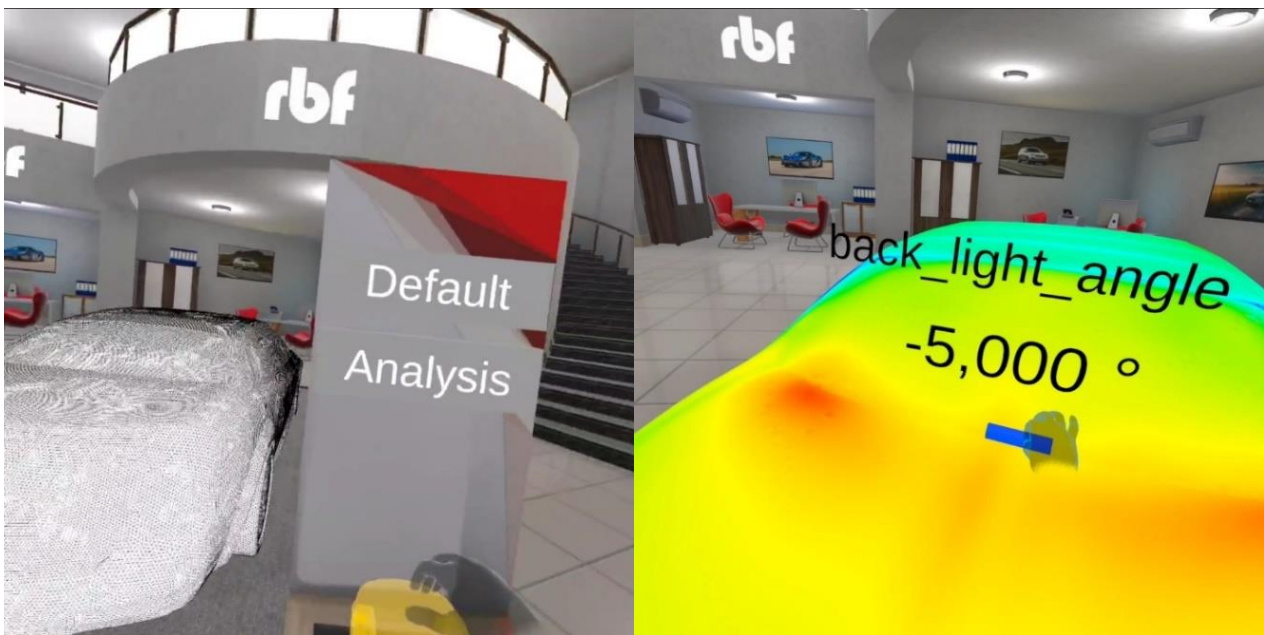


Complete Solution for Delivering Interactive Digital Twins with Custom AR/VR UI

High-fidelity simulations are increasingly adopted to generate synthetic big data for training AI models. These models exhibit precision comparable to full simulations while operating in near real-time. This approach provides significant advantages. During the design stage, interacting with the models helps steer new projects more effectively. During operation, real-time interactions are key enablers of digital twins. However, there are challenges. Creating big data requires a high level of automation, and a replicable, easily deployable workflow is necessary for the technology to be effective. We present a comprehensive solution based on Ansys CAE tools: Mechanical for FEA, Fluent for CFD, combined with RBF Morph to automate the generation of design variations. Twin Builder is used to train reduced-order models, which are then exported into functional mock-up units (FMUs) and processed by RBF to be deployed in interactive dashboards. These dashboards are powered by Unity rendering and exported to Meta Quest 3 AR/VR. This approach is demonstrated with examples from various fields, including aeronautical, space, automotive, and healthcare.



An example of immersive aero development of a car. The Shape is changed and the CFD results are updated in real time. Full video at this link https://youtube.com/shorts/StOSE_sYq1E?si=JgNS4TUM3l0-ptpL

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