# Volkswagen and Innoactive advance digital twin technology with Apple Vision Pro



Volkswagen has made a significant advancement in validating photorealistic digital twins through a collaborative initiative with Innoactive, leveraging Nvidia's Omniverse platform. This development marks the first instance of the use of Apple’s Vision Pro XR headsets in conjunction with Innoactive XR Streaming, a technology designed to enhance the capability of digital twins in an industrial context.

The newly announced integration utilises OpenUSD format and spatial streaming technology from Nvidia, facilitating the transmission of extensive engineering-grade datasets across various spatial devices. This innovation allows for the remote and efficient streaming of immersive 3D environments, which can be accessed anytime and from anywhere, simplifying the workflow associated with extended reality (XR) environments.

Innoactive’s XR Streaming is noted for its one-click access feature, which streamlines XR workflows, compatible with browser streaming and various standard virtual reality headsets, including the latest Apple Vision Pro. This offers businesses a cost-effective solution for immersive experience creation, whether via cloud computing or on-premises GPU installations.

Dr. Axel Heinrich, Volkswagen AG’s head of innovation and systems architecture, elaborated on the capabilities brought about by this technology. Speaking to DEVELOP3D, he emphasised the necessity of visualisation technologies to enhance decision-making processes. “For valid decisions, we need visualisation technologies that allow us to simulate the real world,” he stated. He further remarked on the role of Innoactive's platform in bolstering Volkswagen’s Digital Reality Hub, highlighting that the new integrations allow for precise surface validation and prompt decisions regarding ergonomics and user interaction without requiring physical prototypes.

This advanced system is characterised by its ability to provide high precision and realistic visualisations, integrating real-time lighting and shadow effects. It is designed to improve the overall user experience in automotive design while delivering significant insights throughout the prototyping process.

Additionally, the collaboration unveils a novel hybrid rendering technique. This method merges local and remote rendering capabilities, promoting fully interactive experiences within a single application, utilising Apple’s native SwiftUI and Reality Kit alongside the Nvidia Omniverse RTX Renderer. This innovative approach is aimed at achieving real-time photorealism in digital twin environments, effectively managing large enterprise datasets while maintaining high levels of efficiency and quality.

In the rapidly evolving landscape of AI automation and digital transformation in businesses, this advancement exemplifies the growing trend of integrating immersive technologies to streamline processes and enhance product development methodologies across various industries.

Source: [Noah Wire Services](https://www.noahwire.com)

## Bibliography

1. <https://develop3d.com/vr-ar-mr/volkswagen-work-with-innoactive-and-nvidia-for-apple-vision-pro-xr-streaming/> - Corroborates the collaboration between Volkswagen, Innoactive, and Nvidia for validating photorealistic digital twins using Apple Vision Pro XR headsets and Nvidia's Omniverse platform.
2. <https://develop3d.com/vr-ar-mr/volkswagen-work-with-innoactive-and-nvidia-for-apple-vision-pro-xr-streaming/> - Details the use of OpenUSD format and Nvidia spatial streaming technology for transmitting extensive engineering-grade datasets.
3. <https://develop3d.com/vr-ar-mr/volkswagen-work-with-innoactive-and-nvidia-for-apple-vision-pro-xr-streaming/> - Explains Innoactive’s XR Streaming one-click access feature and its compatibility with browser streaming and various VR headsets, including Apple Vision Pro.
4. <https://develop3d.com/vr-ar-mr/volkswagen-work-with-innoactive-and-nvidia-for-apple-vision-pro-xr-streaming/> - Quotes Dr. Axel Heinrich on the necessity of visualisation technologies for decision-making and the role of Innoactive's platform in Volkswagen’s Digital Reality Hub.
5. <https://develop3d.com/vr-ar-mr/volkswagen-work-with-innoactive-and-nvidia-for-apple-vision-pro-xr-streaming/> - Describes the high precision and realistic visualisations, including real-time lighting and shadow effects, and their impact on the user experience in automotive design.
6. <https://www.innoactive.io/post/cloud-xr-streaming-nvidia-l40s-aws> - Details the integration of Nvidia L40S GPUs on AWS G6e instances for cloud-based XR streaming, supporting high-quality XR applications and collaborative design reviews.
7. <https://www.innoactive.io/post/cloud-xr-streaming-nvidia-l40s-aws> - Highlights the features of Innoactive’s platform, including one-click access to XR streaming, high-performance GPU rendering, and real-time multi-user collaboration.
8. <https://innovateenergynow.com/resources/xr-executive-qa-innoactive-and-nvidia> - Discusses the integration of Nvidia Cloud XR technology into Innoactive’s system, enabling Volkswagen to stream applications to standalone VR headsets without a PC.
9. <https://www.xrtoday.com/mixed-reality/apple-vision-pro-gains-enterprise-grade-xr-streaming-capability-ces-25/> - Announces the new product partnership between Innoactive, Apple, and Nvidia for streaming Universal Scene Description (OpenUSD) workflows to Apple Vision Pro headsets.
10. <https://www.xrtoday.com/mixed-reality/apple-vision-pro-gains-enterprise-grade-xr-streaming-capability-ces-25/> - Explains the hybrid rendering technique that combines local and remote rendering, using Apple’s native SwiftUI and Reality Kit alongside the Nvidia Omniverse RTX Renderer.
11. <https://www.xrtoday.com/mixed-reality/apple-vision-pro-gains-enterprise-grade-xr-streaming-capability-ces-25/> - Details the features of the new streaming platform, including streamlined access to immersive 3D environments, browser streaming, and enterprise-grade security considerations.
12. <https://develop3d.com/vr-ar-mr/volkswagen-work-with-innoactive-and-nvidia-for-apple-vision-pro-xr-streaming/> - Please view link - unable to able to access data