**Title of the presentation**
ICARUS - Towards a VR-based training platform for Assembly, Integration and Testing

**Name of the author(s) with affiliation and complete address**
Daniel Twigt – ATG-Europe (Huygensstraat 34, 2201 DK Noordwijk, The Netherlands)
Petra ten Hove – NLR (Anthony Fokkerweg 2, 1059 CM Amsterdam, The Netherlands)
Stefan Brouwer – ISISpace (Anthony Fokkerweg 2, 1059 CM Amsterdam, The Netherlands)
Laurens Mathot – ATG-Europe (Huygensstraat 34, 2201 DK Noordwijk, The Netherlands)

**Technical theme(s)**
Stand-alone solutions, Reduction of the AR/VR scenarios preparation time, Added value of well-defined and designed UI/UX

**Short description**
Satellite Assembly, Integration, and Testing (AIT) is a critical phase in satellite manufacturing, ensuring the functionality and reliability of space-bound assets. AIT engineering demands a diverse skill set encompassing system knowledge, procedural expertise, tool proficiency, and safety awareness, among others. However, the high costs and limited availability of required hardware often pose challenges for hands-on training.

To address these constraints, AIT training in Virtual Reality (VR) emerges as a promising solution. By leveraging the immersive capabilities of VR, trainees can engage in realistic simulations of AIT procedures, acquiring essential competencies in a cost-effective manner and a controlled environment. This serves as the central concept behind the development of ICARUS, a VR training platform tailored for AIT procedures. Using ICARUS, trainees can develop selected competencies based on actual AIT procedures, digital models of the required components, and a realistic representation of required steps and activities in VR. This includes activities such as cable harnessing and requires a sufficiently realistic representation of all tooling required in the AIT process, among others.

In this presentation, starting with an exploration of the AIT process at a reference cubesat manufacturer (ISISpace), we will pinpoint key training needs and competencies for AIT engineering. Subsequently, we will address how ICARUS will empower trainees to hone selected competencies through an immersive VR-based AIT training experience.



Source: ISISpace