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ASTROSCALE'S VISION FOR HOLO-VIRTUALIZED AUGMENTED REALITY FOR ELSA-D ASSEMBLY, INTEGRATION AND TESTING

Abstract

Over the past decade, interactive holographic visualization has developed from science fiction into a technology that's used by a number of aerospace companies for technical training, major design reviews, data exploration, and more. At Astroscale, as we work to assemble the ELSA-d rendezvous and proximity operations demonstrator spacecraft, we are introducing holographic visualization via augmented reality to assist with many of the most crucial steps of the process.

This paper will discuss the ways in which augmented reality has been introduced into the Assembly, Integration, and Testing (AIT) process within Astroscale. We will begin with a description of how we designed our software to meet the unique needs of our AIT process. We will show how we used iterative design and user research to optimize the usefulness and usability of our software tools. We will discuss how our holographic tools have been put into practice during the engineering process, and how the unique capabilities of this technology allow us to confront distinct engineering challenges.

Finally, we will provide an overview of what has and hasn't worked up to this point, and give advice about what we feel are best practices for a successful application of holographic visualization to problems inherent to spacecraft engineering projects. We hope to provide a set of guidelines that can help other teams to maximize the potential results of applying augmented reality to their work.