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HOLOGLOBE AUGMENTED REALITY FOR ICESAT-2 MISSION OUTREACH

Abstract

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Augmented Reality (AR) is a cutting-edge tool that, when integrated successfully, is extremely valuable as a novel educational outreach product that can be readily distributed via mobile phones and tablets. This paper will describe and demonstrate an ICESat-2 mission module for the existing HoloGLOBE AR application to engage and educate users of all ages. ICESat-2 (Ice, Cloud, and land Elevation Satellite-2) was recently launched in September 2018 and is currently collecting data of Earth's heights using lasers. The data collected will be useful in further understanding the worldwide issue of global warming and the resulting loss in ice mass. This application of AR is thus utilized to educate and excite the public about the mission. Using the HoloGLOBE app in conjunction with the Merge Cube as a means of communication, users are able to visualize and interact with the globe in their own hands to further understand the polar orbit of ICESat-2 and the elevation data that it will collect. The app contains an animated character, 'Pho the Photon,' a mission mascot designed by students at the Savannah College of Art and Design that leads users through the module's activities. One of the activities allows users to select a region on the globe and view a sampling of point cloud data that the satellite has collected for that area. By integrating Pho as an animated, friendly character to accompany the information about the ICESat-2 mission and additionally providing a gallery of point cloud data through which users can browse, the module has exceeded expectations in providing educational and engaging content for all.