Immersive Media for Introductory Surveying Laboratory Exercises

Brian Naberezny, Dimitrios Bolkas, Jason Kepner, Eric Williams

Many introductory surveying courses require students to collect spatial data using various instruments and techniques during an outside laboratory period. Traditionally, students are introduced to new instruments and techniques immediately prior to learning about and performing the laboratory exercise within the time-limited laboratory period. This is typically a passive exchange where students listen to and/or observe the Instructor while attempting to absorb large quantities of new information. Instruments frequently have many knobs and buttons and procedures are usually verify specific requiring completion in a particular sequence. Hands on practice with the equipment and repetition of the procedures is the best way to master the data acquisition tasks frequently encountered in introductory surveying lab exercises.

While virtual and augmented reality have the potential to provide detailed immersive experiences, the direct and indirect costs associated with content creation can be prohibitive. Cameras capable of producing stereoscopic, 180°, and 360° images and videos and readily available software packages for editing and enhancing these images and videos allow for the rapid creation of engaging and immersive content that can be viewed using hardware ranging from a cell-phone web browser to a virtual reality headset.

This presentation will report on the status of the development of immersive media content captured using stereoscopic, 180°, and 360° cameras intended to engage students and provide them out of class opportunities to gain experience with new laboratory equipment and procedures. A proposed study to determine if this use of immersive media increases preparation, engagement, learning, and satisfaction in introductory surveying lab exercises will also be discussed.