

# UNIVERSITY OF SOUTH FLORIDA

## Defense of a Doctoral Dissertation

### Exploring Scalability of Multimodal User Interface Design in Virtual and Augmented Reality

by

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Use of Extended Reality (XR) technology such as Augmented Reality (AR) and Virtual Reality (VR) has experienced significant growth, with continuous advances in mobile technology and head-mounted display (HMD) headset development. As applications that span more than one type of reality have started to emerge, there is a need for additional research regarding the user interfaces (UIs) developed for these multimodal systems. While some work exists towards the creation of user interface design guidelines for AR and in VR, little to no work has been done in providing recommendations for designing interfaces that work successfully across multiple XR modalities. To explore this, three studies were conducted using an existing military training application.