# A Virtual Reality Cybersecurity Training Knowledge-Based Ontology

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**Abstract :** Effective cybersecurity learning relies on an engaging, interactive, and entertaining activity that fosters positive learning outcomes. VR cybersecurity training may promote these aforementioned variables. However, a methodological approach and framework have not yet been created to allow trainers and educators to employ VR cybersecurity training methods to promote positive learning outcomes to the author's best knowledge. Thus, this paper aims to create an approach that cybersecurity trainers can follow to create a VR cybersecurity training module. This methodology utilizes concepts from other cybersecurity training frameworks, such as NICE and CyTrONE. Other cybersecurity training frameworks do not incorporate the use of VR. VR training proposes unique challenges that cannot be addressed in current cybersecurity training frameworks. Subsequently, this ontology utilizes concepts unique to developing VR training to create a relevant methodology for creating VR cybersecurity training modules. The outcome of this research is to create a methodology that is relevant and useful for designing VR cybersecurity training modules.

**Keywords :** virtual reality cybersecurity training, VR cybersecurity training, traditional cybersecurity training, ontology

**Conference Title :** ICISC 2022 : International Conference on Information Systems Cybersecurity

**Conference Location :** San Francisco, United States

**Conference Dates :** June 02-03, 2022