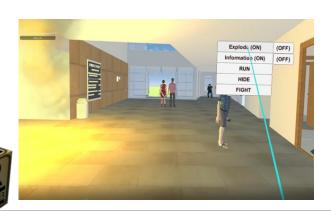Award Number: **2026412, FW-HTF-P: Immersive Virtual Reality Instructional Modules for Response to Active Shooter Events**
PI(s): Dr. Sharad Sharma, Computer Science Department, Bowie State University, Bowie, MD. Email: ssharma@bowiiestate.edu

Brief overview: The primary focus of this project is to increase the efficiency and preparedness of public safety professionals for active shooter events, with a focus on the design of future technologies for conducting emergency response training.

Future Technology

The pilot research in this project involves developing immersive virtual reality instructional (VRI) modules to serve as a platform for emergency training to be deployed across institutions of higher education (IHEs).

Future Work

This work builds on an existing VRI module for active shooter response and will expand the simulation environment to include public safety professional training with an active shooter scenario.

Active Shooter Response Module for building occupants based on Run, Hide, & Fight (Oculus Version)

https://youtu.be/TWCFNwijxOE
https://youtu.be/JM8W-hd17iU

Active Shooter Response Module for Security Personnel (Oculus Version)

https://youtu.be/x9OzOYhSmaU
https://youtu.be/M2QQa3zL8xk

Future Workers

These active shooter response training drills and exercises will facilitate the implementation of emergency operation plans and the translation of plans into action.

Publications

1. Sharma S., Ali, S., "Multi-agent Crowd Simulation in an Active Shooter Environment", Springer Nature Switzerland AG, https://doi.org/10.1007/978-3-031-06015-1_8, In J. Y. C. Chen and G. Fragomeni (Eds.): Virtual, Augmented and Mixed Reality: Applications in Education, Aviation and Industry, LNCS 13318, pp. 1–13, 2022.

2. Sharma, S, Bodempudi, S.T., "Immersive Virtual Reality Training Module for Active Shooter Events", IS&T International Symposium on Electronic Imaging (EI 2022), in the Engineering Reality of Virtual Reality, Burlingame, California, January 2022.

3. Sharma, S, "Improving emergency response training and decision making using collaborative virtual reality environment for building evacuation", In Virtual, Augmented and Mixed Reality. Multimodal Interaction, HCII 2020. vol 12428, pp. 1–12, https://doi.org/10.1007/978-3-030-59990-4_17, Springer Nature, 2020.