

# Hacking VR Application



## Abstract

Virtual Reality (VR) is the concept of immersion of a person in a virtual world, usually with specialized tools, like a headset. Many people these days see VR as a future prospect, with life slowly moving into a virtual world. Whether it is true or not, does not matter; as long as VR becomes more common and is used more for everyday life, malicious actor would seek to exploit it. Application made for VR are still in their infancy, which means that extensive vulnerability research was not conducted. Although research is ramping up, there is still so much work to do. In this project, you will research potential vulnerabilities in VR applications, apply various tool sets and types of hacking, including breadth and depth research. You will write an extensive report detailing both successful attempt and failed ones.

## Project overview

In this project you will:

- a. Study and practice application penetration testing.
- b. Write a report that includes all your findings..
- c. In case of vulnerability, write a PoC (proof of concepts) that demonstrates its use.

## Project schedule

1. Week 1: Kick-off meeting:  
A meeting of the students with the instructor. Will align the students with the requirements of doing the project, and mark the start of work.
2. Week 3: VR applications review:  
The students will present a review of the article about VR hacking, and then showcase their chosen VR application to hack. The students will then explain their

plan for the research, what methods they will use, and how they hope to achieve them.

3. Week 4-10: Weekly meetings and research:  
During those weeks the students will perform the active research, while keeping communication with the instructor. There will still be weekly meetings to monitor the progress and for consultation.
4. Week 11: Dry Run for final presentation:  
The project will be presented and demonstrated to the instructor as preparation for the final presentation. It will include the complete process of the project, and a demonstration of the vulnerabilities found.
5. Week 12: Final Presentation: The project will be presented and demonstrated in-person in the Cyberlab.

## Notes

1. Deliverables:
  - a. Final report (in .docx and pdf format)
  - b. Final presentation (in .pptx and pdf format)
  - c. Project poster (in .pptx and pdf format)
2. Additional documents (not deliverable):
  - a. Project log  
The students will document all meetings and on-going activities in a shared file. The link to that file will be present at the description of the WhatsApp group.
3. WhatsApp group: “Cyberlab VR Hacking Project”

## Prerequisites

1. Relevant cyber security course (ask the instructor).

## Instructors

Ori Shacham Barr ([s.ori@technion.ac.il](mailto:s.ori@technion.ac.il))

## References:

[1] Rise of the Metaverse’s Immersive Virtual Reality Malware and the Man-in-the-Room Attack & Defenses

<https://www.sciencedirect.com/science/article/pii/S0167404822003157>