Training and Data Analysis use cases for Cybersecurity through Mixed Reality Applications

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Abstract

In this paper[1], we will discuss our point of view of the use of Mixed Environments for Cybersecurity, especially for training and data analysis purposes. We will argue that Collaborative Mixed Environments could merge training and analysis approaches by providing users several points of view on cyber situations.

1 Mixed Reality for Cybersecurity

As we have presented our position on this topic in 2018 [1], we think that Mixed Reality (MR) Environments could be used effectively for Cybersecurity domain through training and data analysis use cases (security sensitization and alert analysis for example).

In various scientific domains, Immersive Analytics is now used to offer more insights about data and situations. Serious games, simulations and Digital Twins also are now developed to train people on specific practices or to enhance their awareness to more general issues.

There exists few environments that merge training and data analysis capabilities; designing such environments requires knowledge about user's practices and skills and to our knowledge there is no framework that proposes such applications.

These kinds of environments could be very beneficial for the cybersecurity domain, as companies need both to train analysts and to give them efficient data analysis tools once they have learned skills.

Our statement is that Collaborative MR environments could help us facing these issues. As presented in Figure 1, having both security and situational awareness options to the same environment could be beneficial to cyber analysts, as they will be able to exchange information and to face simulated crisis by using different roles or levels of details on situations.

We are willing to exchange around this topic during the workshop, and especially around two axes:

- What are the use cases of Mixed Environments for Cybersecurity apart from learning and data analysis?

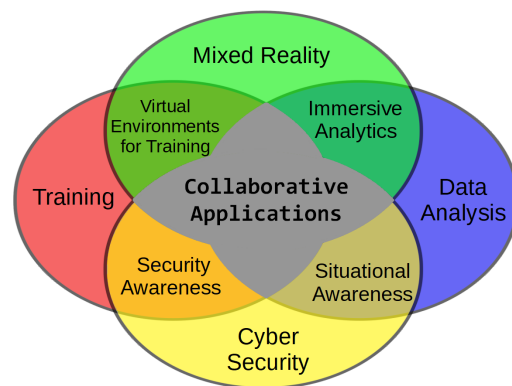- What could collaboration bring to the previously cited use cases?

Figure 1: Venn diagram of the links between Mixed Reality and Cyber security through training and data analysis

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References

[1] Alexandre Kabil, Thierry Duval, Nora Cuppens, Gérard Le Comte, Yoran Halgand, and Christophe Ponchel. Why should we use 3d collaborative virtual environments for cyber security? In *2018 IEEE Fourth VR International Workshop on Collaborative Virtual Environments (3DCVE)*, pages 1–2. IEEE, 2018.