

Virtual Reality: From Virtual To Reality

Computação Ubíqua 2014/2015

Ricardo Fusco

Escola de Ciências e Tecnologia
Universidade de Évora



June 22, 2015

Summary

1 Virtual Reality: Aspects & Considerations

- What is it? When did this concept come to life?
- Kinds of VR

2 Positive & Negative aspects

- Positive aspects
- Negative aspects

3 Fields/Areas exploring this concept

- Healthcare
- Education
- Military
- Gaming

4 Conclusions & Future Perspectives



What is it? When did this concept came to life?

- This concept has been around for quite some years.
- There are still a big array of limitations regarding the hardware required for this technology.
- Both Augmented Reality and Virtual Reality share the same goal to immerse the user in the experience even though being quite different technologies and with different purposes.



Figure 1: Virtual Reality and mobile devices

Kinds of VR

- There are several kinds of VR, like interaction with a 3D image, or for purposes of gaming, for training, for learning, etc.
- VR headsets, glasses, data gloves, display screens, computers, joysticks and mobile devices can/are used for the interactions.



Figure 2: Data Gloves

Positive aspects

This technology has almost as many positive aspects as it has negative ones. It can bring a lot of useful functionalities to further improve our everyday lives and its potential for different areas in the near future is almost infinite.

- There is an evergrowing number of areas of expertise that can greatly benefit from this technology.
- It gives users the innovative experience to observe and interact with things in an unique way.
- One can obtain immediate real-time feedback on the activities being done.
- The healthcare sector can benefit from this by allowing for different kinds of treatments.
- Regarding education people can be better prepared and trained for every kind of task by executing simulations.
- The chances of happening fatal errors/mistakes in dangerous and risky situations can be minimized by training the specialists while keeping them out of harms way.
- . . .



Negative aspects

As there are positive aspects to it, there are also negative aspects and downsides regarding the VR technology

- A major issue with this technology is the highly inflated price of all of the hardware/equipment necessary.
- The VR technology is in the market for a short period of time thus not quite fully integrated in the different existing markets.
- It may cause motion sickness if VR headsets are used.
- This technology can create some sort of addiction because of the full immersion it provides to the user.
- In the future there may be some privacy issues because the equipments are vulnerable to hackers.
- The lack of proper laws regarding this technology may be a problem due to its fast paced evolution.
- As the technology is still on its first steps it still presents several flaws.



Healthcare

- This sector can benefit not only by improving the doctors' training process but also by improving/creating different kinds of treatments for patients.



Figure 3: Virtual Reality Medical Simulations for Health Care Training

Education

- The process of education can be greatly improved for everyone.



Figure 4: Classroom of the Future



Military

- Allows a safe alternative to dangerous military training by simulating practice exercises for military personnel.



Figure 5: US Navy Marines training exercise



Gaming

- Gaming is one of the areas to whom this technology will be more beneficial providing a more immersive and more physically engaging experience in whole new virtual environments.



Figure 6: Oculus Rift & Virtuix Omni virtual reality gear in E3

Conclusions & Future Perspectives

- Virtual Reality is still a new technology giving its first steps onto the future having some flaws.
- This technology has enormous potential for a large amount of areas/sectors.
- It's being constantly improved and evolving rapidly.
- Even though a different concept than that of Augmented Reality it will surely thrive in the future.
- Remains to be seen the developments regarding the legislation and the privacy issues that can appear in the future.
- It will be interesting to observe how this technology will grow in the near future.



Conclusions & Future Perspectives

The End