

Optimization of Business Processes thanks to Machine Learning and Virtual Reality

Use-Case : SpeakInVR

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Introduction



Definitions

Valence: corresponds to how positively or negatively the attendee (avatar in our context) feels toward the speaker (with VR headset) or the presentation

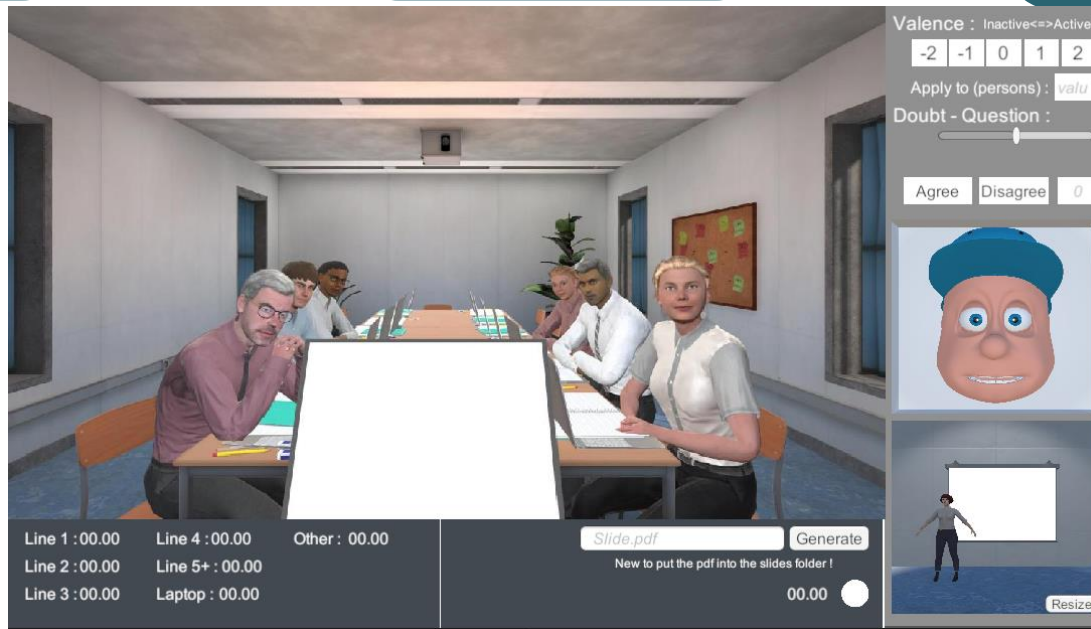
Arousal: audience member's level of alertness

Project : 3-step process

Creation of an interactive audience

Voice and Speech analysis with Statistics, NLP, ML and DL approaches

Public speaking training in virtual reality



Contributions

First part

- Understanding how some attitudes of a virtual audience are perceived in Virtual Reality (valence – arousal)
 - VR headsets (low-end VS high-end)
 - Photorealistic models VS sketched models
 - Gender and complexion
- Study of the quality of immersion and of the feeling of presence in VR:
 - VR headsets (low-end VS high-end)
 - Photorealistic models VS sketched models
 - Gender and complexion
- Creation of a library of animated avatars associated with some levels of arousal and valence to be used in a VR training environment.

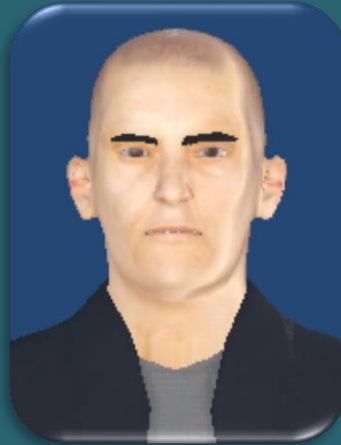
Mid-term :

- Training environment where the virtual audience will react appropriately to the speech; either on the therapist demand and/or automatically (artificial intelligence)



VR environment

Sketched
VS
Photorealistic models



Low-end VS high-end headsets



Results : Part I

- First part finished
- Experiment with 125 participants immersed in VR and assessing the level of valence and arousal of a virtual audience
- Results will be shown in the poster's session tomorrow

Mains Results :

- Library of animated avatars associated with some levels of arousal and valence to be used in a VR training environment.
- Photorealistic models improved the confidence level of participants.
- High-end headset improves the quality of immersion.

References

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