Immersive Audio Recording for Virtual and Augmented Reality

0 Analysis

To best analyse the results, five analysis targets were defined:

- Analysis 1: Does viewing position effect Spatial Attribute rating?
- Analysis 2: Does the choice of microphone array effect Spatial Attribute score?
- Analysis 3: What is the effect of using Directional or Diffuse-Field Arrays?
- Analysis 4: Is there a in perception of timbre with difference viewing positions?
- Analysis 5: Is there a correlation between SA score and selected timral attributes?

0.1 Analysis 5: Is there a correlation between spatial attribute score and selected timbral attributes?

Correlation coefficients were calculated for each combination of spatial attribute score against timbral attribute score. Most calculations returned weak correlations with p-values > 0.05 other than two timbral attributes specifically when comparing against the 'envelopment' spatial attribute. Figure 1 shows the line of best fit for all timbral attribute scores against the spatial attribute scores for 'envelopment'. The dashed lines indicate a statistically significant correlation as found with the timbral attributes 'Full' and 'Realistic'. The graph indicates that there is a significant positive correlation between the increase in sense of envelopment in the virtual environment with the sense of the virtual environment sounding realistic.

The data also indicates a negative correlation between participants sense of envelopment and their perception of the timbre sounding 'Full'. The reason as to why this is is not exactly clear. It could be said that participants perception of 'Full' may mean an unnatural abundance of bass frequencies which may sound unrealistic. If this is the case, as we can see from the positive correlation between a sense of envelopment and a sense of the environment sounding realistic, that an unrealistic sounding environment would lead to a decrease in participants sense of envelopment.

1 REFERENCES

[1] H. Riaz, M. Stiles, C. Armstrong, A. Chadwick, H. Lee, G. Kearney, "Multichannel Microphone Array Recording for Popular Music Production in Virtual Reality," presented at the *Audio Engineering Society Convention 143* (2017 Oct), URL http://www.aes.org/e-lib/browse.cfm?elib=19333

THE AUTHORS