

# The Implications of Introducing Tactile Sound into Live Entertainment

## Definitions

Before explaining the premise of this project and its intentions, it is first necessary to define my terminology. Tactile sound refers to the delivery of audio through the sense of touch using techniques such as human haptics and audio-driven sensory feedback, the interpretations of which will be based on those proposed by El Saddik (2007) and Merchel *et al.* (2012). I will use the term body panning to refer to the distribution of audio sources across the body in a similar manner to the way in which they are placed in a stereo or surround sound field. For instance, the equipment could be arranged so that the audience can experience the lead guitar through the left arm, the kick drum in the chest, the bass guitar in the right leg, and so on.

## Project Proposal

Analysis of tactile sound and body panning technologies will allow for the innovative exploration of their applications in live entertainment. I will focus on the significance of providing artists and creatives with another medium in which to present their work to audiences, including various modes of delivery appropriate to different venues. Additionally, I will assess the potential for implementation of these technologies in virtual, augmented and extended reality performances. It will be important to seamlessly integrate the proposed technologies in live entertainment venues so as not to impede accessibility. Although the National Theatre have gone some way towards enhancing the experience of attendees with hearing impairments with their Smart Caption Glasses (National Theatre, 2020), I will attempt to provide a fully inclusive auditory experience for the audience collectively. However, I will need to consider the ethical implications that such technologies will inevitably present when used on certain groups. Previous research suggests that current technologies are best interpreted by users when repeated rhythms and frequencies are employed (Merchel *et al.*, 2012), thus suggesting the application may be more appropriate for music rather than dialogue.

## Ethical Considerations

In collaboration with theatre consultancy companies and other relevant organisations such as the National Autistic Society, another area for development could be the use of textures in venues. The majority of people with autism spectrum disorders present with “unusual sensory responses” in relation to sound, touch and multisensory processing. Their sensitivity to these stimuli often lessens in intensity with age (Crane *et al.*, 2009), but it would also be interesting to conduct research into whether or not different textures exacerbate and/or mitigate the experience. That said, as delivery methods considered in this project may trigger sensory overloads (Pellicano, 2013), any trials involving tactile sound and body panning technologies will need to satisfy ethical research practices and all participants should be advised of the potential risks beforehand.

In addition, I will consider the reception of these technologies by the Deaf community, including how they experience the physical sensations and vibrations. According to Padden and Humphries, members of the Deaf community have historically been “labelled, segregated and controlled” (2005: pg.6-7). Therefore, due diligence and care will need to be taken to ensure that participants in this study do not feel marginalised.

## Bibliography

Crane, L., Goddard, L. and Pring, L. (2009). 'Sensory processing in adults with autism spectrum disorders'. *Autism*, 13(3), pp. 215-228. doi 10.1177/1362361309193794.

Merchel, S., Altinsoy, M.E. and Stamm, M. (2012). 'Touch the Sound: Audio-Driven Tactile Feedback for Audio Mixing Applications', *AES: Journal of the Audio Engineering Society*, 60(1-2), pp. 47-53. doi 10.21437/pqs.2010-2.

National Autistic Society (2018). *Sensory Differences – National Autistic Society*. Available from <https://www.autism.org.uk/about/behaviour/sensory-world.aspx> [accessed 19th May 2020].

National Theatre (2020). *Smart Caption Glasses | National Theatre*. Available from <https://www.nationaltheatre.org.uk/your-visit/access/caption-glasses> [accessed 30th April 2020].

Padden, C. and Humphries, T. (2005). *Inside Deaf Culture*. London, United Kingdom: Harvard University Press. Chapters: *Introduction: The Lens of Culture* (pg. 1-10), *Technology of Voice* (pg. 100-122).

Pellicano, E. (2013). 'Sensory symptoms in autism: A blooming, buzzing confusion?', *IEEE Instrumentation and Measurement Magazine*, 10(1), pp.10-17. doi: 10.1109/MIM.2007.339540.

El Saddik, A. (2007). 'The Potential of Haptics Technologies', *IEEE Instrumentation and Measurement Magazine*, 10(1), pp.10-17. doi: 10.1109/MIM.2007.339540.