

— **Positive audience perceptions of  
enhancements to accessibility from  
wearing haptic vests during Deaf Rave  
DJ performances at music festivals.**

**Adrian Bossey, Mandy Curtis & Adam Jones**

# Presentation Overview

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- **Discuss accessibility for people who are d/Deaf, disabled or neurodiverse to music festivals**
- **Introduce haptic ICT**
- **Consider the LAAA2F Project**
- **Share on-going research directions**

# Disability in the UK

**“An individual can be classified as disabled if they have a physical or mental impairment that has a ‘substantial’ and ‘long-term’ negative effect on [their] ability to do normal daily activities.”** (Equality Act, 2010)

In 2020/21, **24 percent of the UK population** (16 million people) had a “physical or mental health condition or illness that has lasted or is expected to last 12 months or more.”

(House of Commons Library 2023:1)

“More than a quarter of UK residents will be aged 65 years or over within the next 50 years.”

(Office for National Statistics, 2018)

# Some music context...

**Music festivals** can be conceived of as “**social field configuring events**” ...capable of advancing the global accessibility movement.

(Duignan 2023:3)

The music industry is exclusive, it **discriminates** against pretty much all the protected characteristics of the Equality Act **and** poverty

**“73% of disabled respondents felt they had to compromise their health or wellbeing to do their job (vs 52%)”**

UK Music Diversity report (2024)

Accessibility refers to “**measures put in place to address participation by those with impairments**”

Finkel, Sharp & Sweeney (2019:2)

# Accessible digital futures

Existing ICT augmentations can increase access

**Hearing loops** which deliver a wireless signal for hearing aids  
(Hearing Link Services, 2023)

Time synchronised text in the form of **closed captioning**  
(Mahoney 2023)

**Sign language interpretation** on a big video screen

**and...Haptic technologies?**

# Haptic technologies



- Identified by Robertson et al (2015) as a likely element of future audience experiences at music festivals
- Touch is one of the **“big five”** senses (Sensory Trust 2020:3)
- **“Deep-seated correlations”** between the senses of hearing and touch (Jack et al 2015)
- Haptic ICT deploys tactile sensations to **“stimulate the sense of touch in a user experience”** (Mass Challenge 2021)
- Dance floors, benches, gloves, sneakers, ...and **vests...**

# Initial Work with DEAF RAVE

- Live Audience Accessibility & Augmentation ('LAAA') Project
- 5 Live public performances
- 2 Deaf Rave DJ Workshops
- Student research assistants
- 255 attendees
- 17 businesses and 2 schools supported
- 1 Royal Visit



IMAGE: LAAA Royal visit



IMAGE: LAAA 80 Raves Poster

# LAAA Project Images



Image: Attendees at LAAA Project using BEAT BLOCK haptic floor CREDIT Matt Jessop



IMAGE: Attendees at LAAA Project DEAF RAVE DJ Workshops CREDIT: Matt Jessop



# Live Audience Accessibility & Augmentation Festivals 2 Project

- **AEME SIG Research Fund**
- Initially just Adrian, then Mandy & Adam
- Field tests of Woojer vests at DEAF RAVE performances
- Boomtown Fair 2023
- Deaf Rave Festival 2023



Image: Attendees at Boomtown Fair 2023  
Deaf Rave takeover – credit Adrian Bossey

# LAAA2F Methodology

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- Multi-stage experimental protocol
- Checking/fitting/experiencing vests
- **Questionnaires**
- Closed questions re. age, gender, hearing level, disability, etc
- Likert scale re. experience of interactive haptic technology
- 2<sup>nd</sup> Likert Scale used liveness scale



Image: Audience at Deaf Rave Festival 2023  
– credit Adrian Bossey

# Challenges of working on-site

- Research environment was noisy and at times chaotic
- Ear protection was provided
- Mobile data signals varied
- Paper forms were harder to read / understand
- BSL, gestures and information sheet used to explain research
- Some confused responses



Image: 'Battle of the QR codes' at Boomtown Fair 2023 Deaf Rave takeover – credit Mandy Curtis

# Findings

- Writing-up journal article
- Overwhelmingly positive feedback to using the vests
- No significant difference in responses re age / gender
- Most noticeable variance from neurodivergent respondents
- More research required on different haptic formats



Image: Poster for Deaf Rave Festival – credit DEAF RAVE

# On-going research

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- **Live Audience Accessibility & Augmentation Beat Blocks ('LAAA2BB') Project**
- Working with the **BEAT BLOCKS** haptic floor
- [Hopefully we have time to watch this short film](#)



Image: Collecting questionnaire responses at Boomtown Fair 2023 during Deaf Rave takeover – credit Mandy Curtis

# Thank You

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- **Do you have any questions?**
- Special thanks to Helen Worthington and all our lovely Falmouth University student research assistants



Image: 'Backstage' at Boomtown Fair during Deaf Rave takeover – credit Adrian Bossey

# References

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Equality Act (2010) Equality Act 2010 <https://www.legislation.gov.uk/ukpga/2010/15/contents> The National Archives.

Finkel, R, Sharp, B & Sweeney, M (2019). Accessibility, Inclusion, and Diversity in Critical Event Studies. Routledge. ISBN 9781032338897

Hearing Link Services. (2023 February 13). What is a Hearing Loop, Hearing Link. <https://www.hearinglink.org/technology/hearing-loops/what-is-a-hearing-loop/>

House of Commons Library (2022 August 23) UK disability statistics: Prevalence and life experiences <https://commonslibrary.parliament.uk/research-briefings/cbp-9602/> HMSO

Jack, R, McPherson, A & Stockman, T (2015) Designing Tactile Musical Devices with and for Deaf Users: a Case Study. Proceedings of the International Conference on the Multimodal Experience of Music 2015. Queen Mary University of London.

Mahoney, K (2023 September 1) What Is Closed Captioning? <https://www.3playmedia.com/blog/what-is-closed-captioning/#:~:text=Closed%20captioning%20is%20time%2Dsynchronized,caption%20frames%20with%20the%20video.> 3Playmedia.

MassChallenge (2021, September 23) Haptic Technology: The Future of Engagement? <https://masschallenge.org/articles/haptic-technology/>  
Mass Challenge

Office for National statistics (2018) <https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationestimates/articles/overviewoftheukpopulation/november2018> (accessed 09.02.19) HM Stationary Office.

Robertson, M, Yeoman, I, Smith, K & McMahon-Beattie, U (2015). Technology, Society, and Visioning – the Future of Music Festivals. Event Management Volume 19. Issue 1. (pp567-587) Cognizant Communication Corporation. <http://dx.doi.org/10.3727/152599515X14465748774001>

Sensory Trust (2020, October 15) How many senses do we have? <https://www.sensorytrust.org.uk/blog/how-many-senses-do-we-have> Sensory Trust

UK Music (2024) Diversity Report 2024 <https://www.ukmusic.org/equality-diversity/uk-music-diversity-report-2024/> UK Music