Music Performance

The physical characteristics of a music performance venue influence the multimodal experience of music for the listener and performing musician alike. Furthermore, the performance venue also influences the performance itself, as a musician alters their performance in response to their aural and visual perception of the concert hall.

The Real Performance Venue

Spatial Room Impulse Responses (SRIR) measured for 4 rotations of singer’s head
- Facing front: 0°
- Facing right: 90°
- Facing back: 180°
- Facing left: 270°

Auralisation and Visualisation

Auralisation renders audible the measured acoustic data of the performance venue.

The source sound (singer) is convolved with the measured spatial room impulse response (SRIR) of the venue.

Visualisation of the performance venue helps the performer experience the rendered soundfield as part of an auralisation in a more natural way.

The Virtual Singing Studio

Head-tracking data is used to improve the performance venue auralisation by convolving the singer’s sound with the appropriate SRIR (or mix of two).

Perceptual Testing

Initial testing of an audio-only version showed that professional singers rated the room acoustic simulation in the Virtual Singing Studio as highly plausible, and judged it to be authentic in comparison to singing in the real performance venue.

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