Docket #: S18-504B

Networked Audio Auralization and Feedback Cancellation System and Method

Stanford researchers have developed a networked audio system that enhances the experience of teleconferencing, and online performances, gaming, and gatherings. Node based audio processing creates auralization – (interactive acoustic simulations) and cancels feedback to create a more natural shared acoustic environment, tailored to each participant, without the need for headphones. This invention is an adaptation of Stanford Docket S18-504 for use in virtual meetings, performances, or other streaming situations with individual participants logging in from separate locations.

Stage of Development
Prototype: demonstrated in March 2019 at Stanford University Department of Music and the Center for Computer Research in Music and Acoustics (CCRMA) Open House.

Stanford Docket S24-358 improves the invention further by keeping the acoustic system calibrated under changing conditions, limiting the possibility of feedback when simulating extremely reverberant spaces, and by enhancing the simulated acoustics for quiet sound sources.

Applications

- Videoconferencing and virtual meetings
- Live music, theater, broadcasting and distributed performances
- Virtual reality and gaming

Advantages

- Realistic, immersive, high quality, customizable, shared acoustic space without the need of headphones
- Flexible – can transport audio to any acoustic environment
- Less expensive and cumbersome than current systems
- Uses standard audio equipment
- Can be integrated into any existing speaker combination/array for both professional and home use
- Can be implemented as a stand-alone application or on a computer or device

Publications

- Kimmelman, M. (2020, July 30). How a historian stuffed Hagia Sophia's sound into a studio.*The New York Times*.

Patents

- Published Application: 20210037316
- Published Application: 20230209256
- Issued: 11,589,159 (USA)
- Issued: 12,052,551 (USA)

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