

# Distance perception of nearby sources located around the listener in echoic rooms

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## Type

Oral

## Area / Category

A14 Psychoacoustics

## Structured Sessions

A14.4. Spatial Hearing: Modeling and Applications

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## Abstract summary

Distance perception is typically examined for sources varying in distance, and sometimes also in azimuth. However, very few studies have considered sources varying simultaneously in all three dimensions. Santarelli et al. [J. Acoust. Soc. Am. 105, 1024, 1999] performed an experiment in a reverberant classroom in which subjects were asked to point to the perceived position of broadband-noise sound sources presented from a random location in the right hemifield within 1 m of the listener's head. Here, a new analysis examines distance responses for source location varying in all three dimensions. After binning the data in two distance bins (border at 54 cm) and 25 directional bins (combinations of 5 lateral angles and 1, 4, or 8 polar angles), mean response distances were determined on a logarithmic scale. On average, distances were underestimated by approximately 10%. However, there was a complex interaction. For far sources, there was a pattern of distance underestimation above the listener (up to 30%) and overestimation below (up to 25%) that was largest near the medial plane. For the near sources, only the overestimation of the below-the-listener sources was observed. Thus, distance representation appears to be distorted more in elevation than in the previously examined dimensions.

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