

# **An immersive binaural horizon for sonic data analytics**

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**Abstract:** Accessible data analytics—that can be experienced through vision, hearing, and touch—poses a challenge to interaction design. It is also a human rights requirement because many societies mandate that all individuals have the right to experience products and services, yet not every individual accesses media visually. As more data is presented through visualization, accessibility for populations who do not access data through vision decreases.

Guidelines that claim to make visual media accessible through text fail to translate the iconic properties of visual shapes, thus subtracting affordances for pattern recognition. Non-linguistic sonication can be a means for non-visual pattern recognition.

Hearing is optimized for detecting locations on a horizontal plane, and our approach for presenting data analytics recruits this optimization by using an immersive binaural horizontal plane. We will demonstrate our approach via two case studies: A sonic translation of a map and a sonic translation of a computational fluid dynamics simulation.