Title: Breathing I

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Additional Key Words and Phrases: trauma-informed practice; bilateral coordination; embodiment; wearable gestural performance

1. PROGRAM NOTES

Breath is both deeply personal and profoundly universal. It marks the rhythms of our existence—our presence, our panic, our survival. *Breathing I* externalizes the unseen, transforming breath and bilateral movement into sound, gesture, and light.

This work unfolds in an immersive multi-channel sonic environment, where asymmetric arm and hand movements disrupt and reshape breath-based vocalizations. Datagloves capture the performer's gestures, distorting live and sampled breath into fractured, looping textures. Visual projections—pulsing torus meshes that expand and contract—mirror the instability of panic, their forms echoing the movement of oxygen in the bloodstream.

At its core, *Breathing I* explores the tension between disconnection and control, between the body's automatic rhythms and the disruptions of trauma. As Adriana Cavarero writes, "*Nothing more than the act of breathing is able to testify to the proximity of human beings to one another; nothing else better confirms their communication…"* to signify the essence of being alive [8, p. 31]. Here, breath is more than survival—it becomes communication, rupture, and ultimately, an attempt at reconnection.

Fig. 1. Projections of torus meshes over the performer.

2. PROJECT DESCRIPTION

Breathing I externalizes emotional responses to traumatic experiences through breath and bilateral coordination [1], [2]. Bilateral movement techniques, widely used in trauma therapy [3], [4], engage both hemispheres of the brain, promoting

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bodily unification and focused attention [5], [6], [7]. This work integrates trauma-informed movement practices with wearable gestural music technology to explore sonic representations of psychological states in a multi-channel spatial audio environment.

The performance sonifies panic through gestural control of asymmetric arm and hand movements, which control live and sampled breath sounds and visual projections that depict physiological dysregulation. This links movement, sound, and visual elements in real-time. The performer wears datagloves gloves [9], [10], to capture and map hand and arm movements to sound transformations in Max [11] and Ableton Live [12]. Asymmetrical gestures are assigned to sounds which mimic physiological distress responses such as rapid breathing, while the soundscape consists of chaotic, looped, breath-based textures. Fig. 2 below shows the data and sound flow.

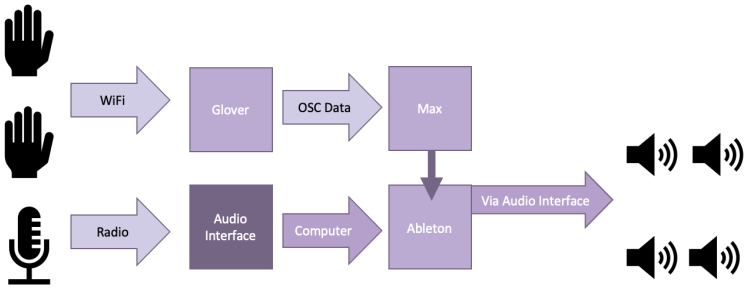

Fig. 2. Projections of torus meshes over the performer.

A circular multi-channel speaker array spatializes sound, allowing movement across the performance space. This setup reinforces the fluctuating intensity of breath and panic, enabling audience members to experience the sonic environment from multiple perspectives.

Visual projections, generated in real-time, use torus meshes that expand and contract — an analogy to hemoglobin's role in oxygen transport (see Fig 1.). The integration of movement, sound, and visuals reinforces the connection between breath, blood flow, and the body's autonomic responses. This multimodal approach transforms internal states into tangible auditory and visual phenomena.

By embedding bilateral coordination techniques into an interactive performance, *Breathing I* aligns with trauma-informed artistic practices. The performer's gestures regulate sound, while the evolving sonic textures externalize and process psychological distress, transforming internal states into external, tangible experiences. The unnaturalness of the sampled and manipulated breath provides a physical disconnection and tension, which is supported by the tense delivery of the movement, where the performer must concentrate on the coordination aspect of this piece [8], [13], [14].

The work explores how embodied interaction can externalize and process psychological distress through multimodal performance by embedding therapeutic movement strategies within an artistic framework. *Breathing I* contributes a trauma-informed model for gestural music performance, using bilateral

coordination to sonify psychological states through breath. It integrates wearable technology, real-time audio-visual processing, and multi-channel spatialization to externalize internal responses to panic. The work links asymmetric gestures to breath-based vocalizations and projections, highlighting how embodied interaction can mediate emotional states. This approach expands NIME discourse by applying therapeutic movement strategies within a live, interactive music context. Table I contains the tech requirements from the venue and artist.

Table I. Performer requirements.

Channels:	4-10
Space required	Solo performer, roving 1-2m
Equipment Requirements from Venue	Small table or table space for electronics Projector HDMI connection Snake to receive audio outs Wireless microphone, if possible
Performer to bring	Audio interface Computer Wireless Mic System (662-686M frequency band if allowable in this region) Datagloves

Source: Performer requirements

3. PERFORMANCE NOTES

This piece is designed for live performance. The performer manipulates sound and visuals through gestural control, using a 4–10 channel circular speaker setup with real-time audio and projection processing. Live granularization and looping of breath sounds are handled via Max devices, with visuals generated in Max reacting dynamically to movement.

4. MEDIA LINK(S)

- Supplementary file provided in CMT.

ETHICAL STANDARDS

This paper conforms to NIME's Code of Practice on Ethical Research. Funding was received from the University of Melbourne for this project. The creative output of this research deals with sensitive content and was conducted with specialist guidance. Audience members were informed of this content prior to performances. Furthermore, performances were open/relaxed, so that any person could exit if necessary.

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