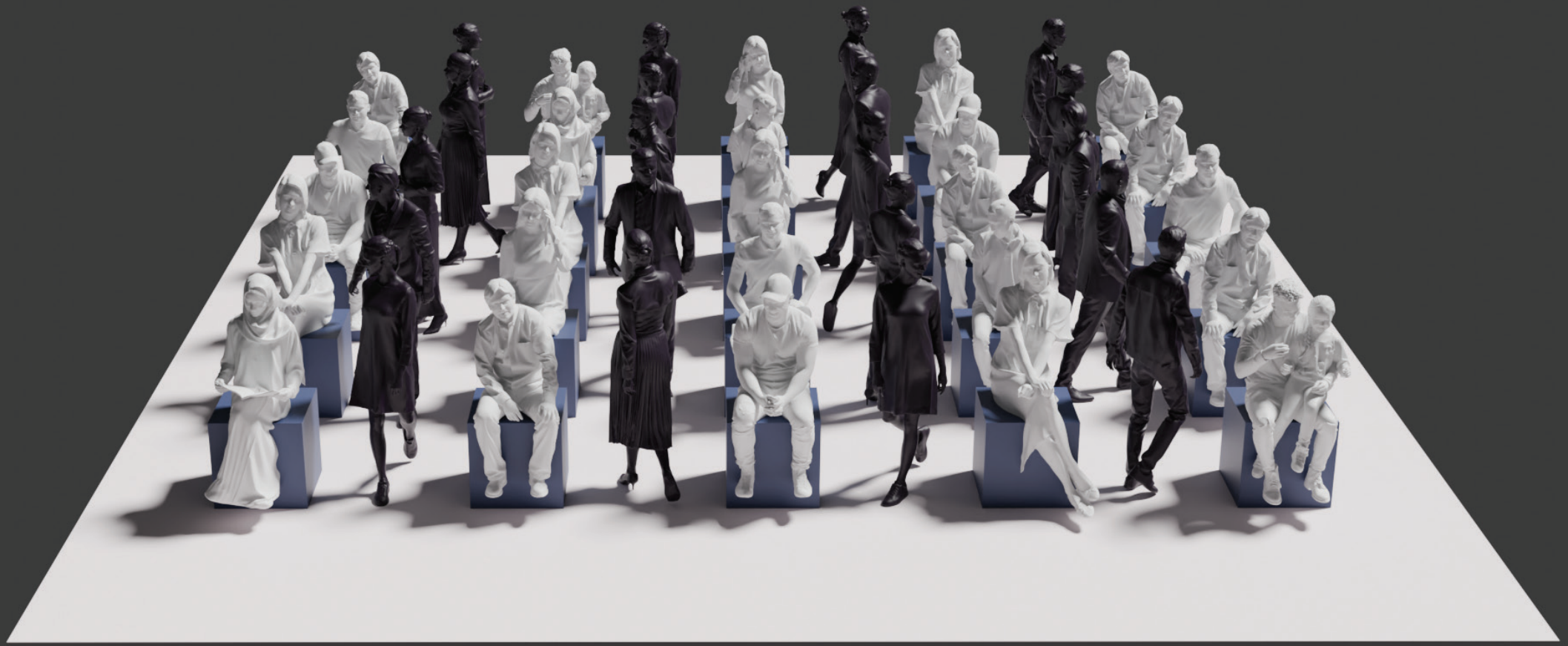


Sync

Lucio Cavallari

Concept Overview

Sync is an immersive audio performance designed to explore the relational space between sound, body, and group consciousness. Inspired by the principles of sound bathing, this project invites the audience into a shared sonic environment where perception is heightened and guided through sound synchrony and subtle technological intervention.

The singers/musicians—represented as black figures in the accompanying visuals—are placed among or around the white figures of the audience, creating an omni-directional sonic landscape. Each performer receives real-time instructions through a synchronized mobile interface, enabling precise coordination across space and time.

The audience may be blindfolded to shift focus inward, dissolving visual distraction and enhancing auditory sensitivity. What unfolds is a liminal encounter where sound becomes movement, and the group becomes an instrument.

Artistic Objectives

Spatialized Listening: The human voice and instrumental sound, untethered from a single direction, surrounds the audience in 360° presence.

Embodied Synchronization: Musicians respond to visual prompts in real-time, allowing for a fluid yet tightly structured sonic choreography.

Guided Immersion: Blindfolded participants journey through shifting layers of harmony, rhythm, and resonance.

Technological Transparency: Technology supports but does not dominate—mobile devices are used discreetly to empower the singers without disturbing the audience's experience.

Experience Design

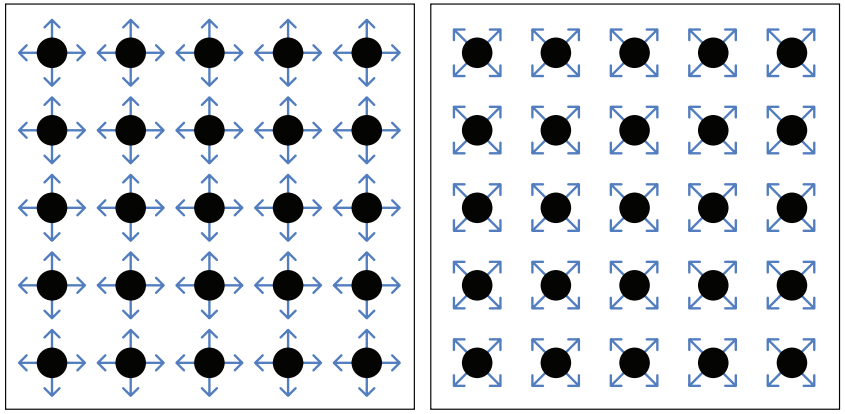
The performance structure includes:

Omni-Directional Soundfield: Performers placed around and within the audience create a moving, immersive sound experience.

Choreographed Movements: Performers' positions and movements are informed by received cues, creating a shifting, living score.

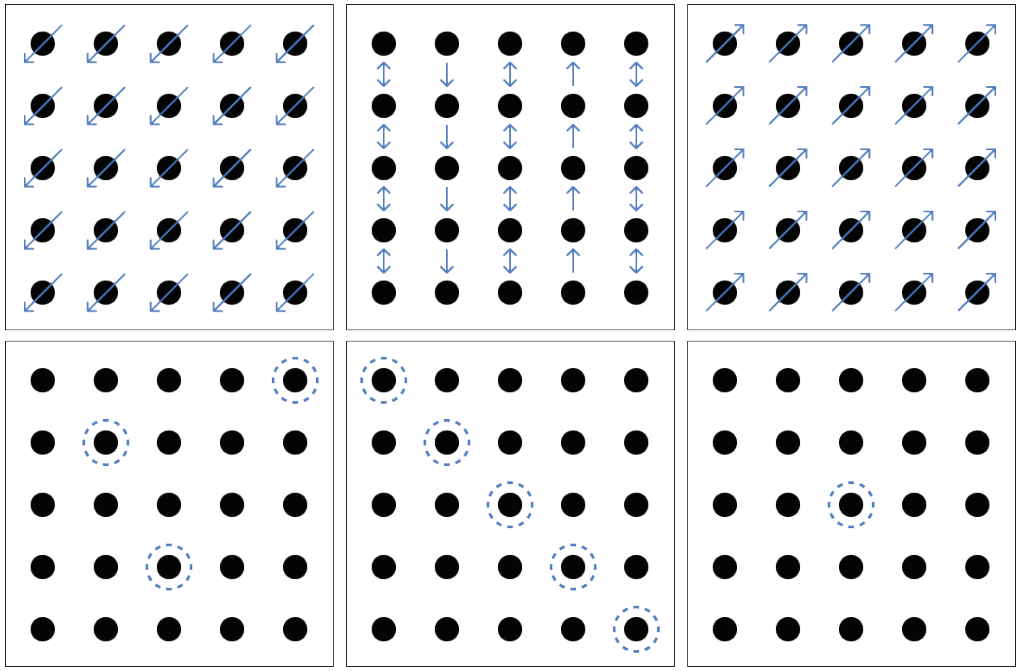
Mobile Visual Interface: Each performer receives cues through a discreet visual display—subtle signals, waveform pulses, and color codes—tailored to their specific role.

Omni Directions — Spatial Activation



The surrounding blue arrows represent sound radiating outward, creating an enveloping sonic field.

Movements — Choreographed Transitions



Top Row: Performers execute directional movements—rotations, vertical shifts, and diagonal gestures—guided by real-time mobile prompts.

Bottom Row: Highlighted circles indicate active roles or featured sonic gestures, shifting focal points across the group.

The Humanizer

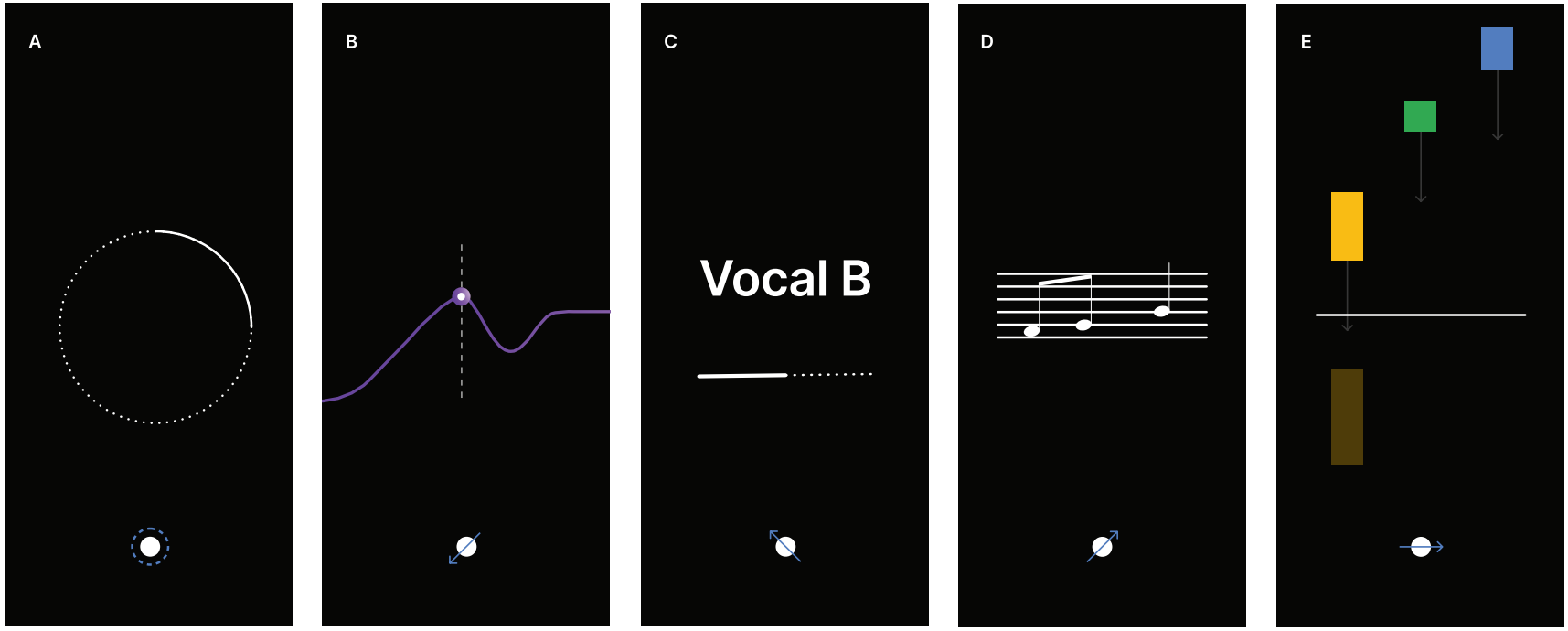
While working on Sync, I realized I might have invented a new kind of instrument, what I later named "The Humanizer".

A singer's vocal cords act like organic oscillators, forming a modular, acoustic synth made of living bodies. With this custom-built network, I can send cues to 25 or more performers — 50 vocal cords responding in real time. The image that came to mind was a piano action striking strings: instead of hammers, it's MIDI; instead of strings, it's breath and voice.

The Humanizer is more than a conducting tool. It's a human-machine instrument in which each performer responds to personalized instructions delivered in real time. The result is three-dimensional, spatial polyphony — harmony and rhythm sculpted not just in time, but across a living, responsive architecture.

Sync, through The Humanizer, introduces a new approach to composition — one that treats space as a musical dimension. It moves beyond traditional notation and fixed arrangements, inviting composers to think in terms of distributed sound, performer intention, and the dynamic shaping of acoustic presence in real time.

UI examples



A. Circular Timing Cue
A visual metronome guiding rhythmic entrances and exits. The white arc completes a cycle to indicate timing and duration.

B. Dynamic Pitch Envelope
A waveform visual representing vocal modulation. The dot marks the current pitch position in time.

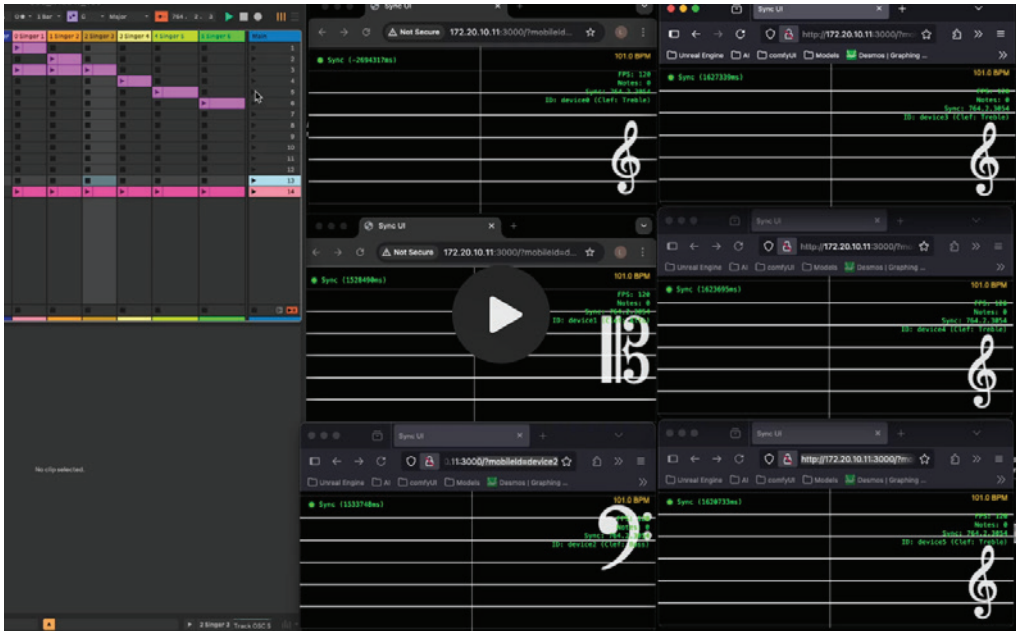
C. Vocal Instruction Prompt
Displays abstract vocal directives such as "Vocal B," inviting performers to interpret actions like whispering, humming, or imitating textures or animal sounds. The dotted line suggests duration or sonic texture.

D. Melodic Notation Prompt
A graphic score displaying a short sequence of notes to be sung or interpreted vocally by the performer.

E. Layered Harmony Stack
Color-coded blocks descending toward a timeline, indicating layered vocal entries or harmonized textures.

Try it on Desktop or Tablet:
Use keys 1–5 to switch sketches.
Play with the text using arrow keys (← → ↑ ↓).
Launch the sketch

First Prototype



The first working prototype of Sync demonstrates real-time transmission of musical data from Ableton Live to multiple screens and a mobile device over local Wi-Fi. Notes triggered in Ableton appear instantly on each performer's screen, creating a synchronized visual score.

The visual interface blends two sketch modes:
Melodic Notation Prompt — A graphic score of note sequences, intended for musical interpretation.
Layered Harmony Stack — Color-coded blocks drifting toward a timeline, signaling the precise moment each layer or harmony should be performed.

Together, they form a hybrid score encouraging both structure and expressive interpretation.

This early test ran on six devices (limited by screen size), but the system is designed to scale to 25+ participants. While still experimental, the prototype marks a significant step in translating musical intention into shared, spatially distributed performance.

Watch the video recording and explore the mobile UI:
Link to website

Beyond Performance

Sync as a Creative Platform

While Sync is conceived as a live immersive performance, its potential extends far beyond a single event. The underlying system is designed with modularity and adaptability in mind, allowing for ongoing creative applications across a range of artistic and technological contexts.

Recording & Reuse

Each performance of Sync can be captured in multitrack audio and visual data. These recordings become high-value assets for:

Music Publishing – Creating original compositions for release across digital platforms.

Spatial Audio Production – Developing immersive soundscapes suitable for Dolby Atmos, Binaural, and Ambisonic formats.

VR & Mixed Reality – Generating content for platforms like Apple Vision Pro, Meta Quest, and other emerging XR environments.

Collaborative Creation

Symphonies & Classical Ensembles – Blending traditional instrumentation with experimental spatialization and real-time cueing.

Electronic & Pop Artists – Integrating responsive vocals and audience interaction into concert settings or studio productions.

Future Applications

Once the system is developed, it can be deployed in multiple formats:

Interactive Installations – As a gallery or museum experience, visitors connect their devices and receive curated content, either as personalized experiences or synchronized collective visuals.

Public Performances – City-wide or open-air events where the audience becomes part of a decentralized performance.

Education & Research – A tool for studying group behavior, sound perception, or participatory design in academic or therapeutic contexts.

Thank you!

Lucio Cavallari

Expert in light, video, sound, interaction, and user experience (UX) design. I specialize in designing user-centric experiences that integrate lighting, sound, and visual elements to enhance usability, engagement, and well-being. Conducts in-depth research on the impact of lighting and environmental design on human health, user behavior, wayfinding, and communication. Independently leads research projects and applies empirical findings to create innovative, user-focused design solutions within architectural, automotive, and interactive environments.

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