

Pillow Talk

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1 Program Notes

Pillow Talk is a collection of seven textile-based interactive sound sculptures that function as wearable digital musical instruments. The project integrates conductive textiles, embedded sensors, and real-time digital signal processing implemented on Bela microcontrollers using Pure Data, C++, and RNBO. Each sculpture maps touch and bodily gesture to sound generation and the transformation of pre-composed musical materials, creating intimate, embodied interfaces for musical performance. Designed for simultaneous use by two participants through shared listening (via headphones), *Pillow Talk* emphasizes collaboration and co-performance, multi-sensorial interaction, and collective embodiment. Bridging fashion, electroacoustic composition, and physical interaction design, *Pillow Talk* expands conventional notions of musical interface, performance, and reception. Designed by sisters Kayla and Kimia, the sculptures were conceived with femininity in mind, exploring softness, intimacy, and vulnerability, as well as resilience, power, and strength with boundaries, as both aesthetic and conceptual frameworks, and in the placement of sensors and the choice of materials. Through this lens, *Pillow Talk* creates space for communal connection, where touch, sound, and shared presence become intertwined.



Fig. 1. Sculpture #4

2 Project Description

Pillow Talk is a collection of seven textile-based interactive electronic sound sculptures, each featuring a unique sensor-based interaction method to control distinct sonic and visual materials. The authors

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consider fashion a functional art and garments as wearable interfaces centering human touch and embodied individual and cultural experience. *Pillow Talk* suggests that fashion might embrace visual and sonic expression alike. Bridging fashion design with electroacoustic composition, physical interaction, and digital signal processing, each of the seven sculptures is focused on the integration of specific sensors (i.e. capacitive, distance, and light) and materials (i.e. conductive fibers and yarns, copper wire, and more) to invite human touch and physical interaction.

Sonic materials for each sculpture are preloaded onto Bela microcontrollers and triggered, looped, and/or processed through programs written in Pure Data, C++, and RNBO. Each sculpture centers the use of a specific sensor type: capacitive touch (Trill), ultrasonic distance, and light (photoresistors). Custom PCB boards were designed to efficiently interface between the various sensors and Bela GPIOs. The majority of the sculptures incorporate thirteen individual sensors per unit, enabling a dense field of interactive inputs across each garment. This multiplicity supports layered mappings between gesture and sonic response, allowing performers to explore and engage with dynamic soundscapes that communicate the unique spatial and textural qualities of the garment. Through this distributed sensing architecture, interaction is experienced not as a single point of control but as a continuous, embodied dialogue between the body, the textile surface, and an evolving sound world.

Designed by sisters Kayla and Kimia, the sculptures were developed with femininity in mind, exploring softness, intimacy, and vulnerability, as well as resilience, power, and strength with boundaries, as both aesthetic and conceptual frameworks, and in the placement of sensors and the careful choice of materials. The authors desired to design an experience that encouraged intimate playfulness, curiosity, discovery, and surprise. The sensors are embedded in such a way that—while not hidden—they merge with the textile and garment design. The textiles for each sculpture are also carefully selected for their tactile qualities, enabling varied hand-feel experiences while supporting different sensing mechanisms and modes of engagement. Importantly, each sculpture offers two pairs of headphones allowing simultaneous engagement by two performers, thus expanding the possibilities for play and audiovisual exploration beyond solitary self-focus to become a social activity.

In line with the NIME 2026 theme of "Communities," *Pillow Talk* creates space for connection, where touch, sound, and shared presence are intertwined. By centering physical touch and shared listening, the project expands conventional ideas of musical performance and reception through intimate, co-participatory interfaces. The ultimate goal of the collection is to offer wearable interfaces for musicians, dancers, choreographers, and other expressive people. *Pillow Talk* integrates digital musical instruments with material craft, and through its interdisciplinary nature across fashion, sound, and interaction design, situates the project within a wider creative and musical community.

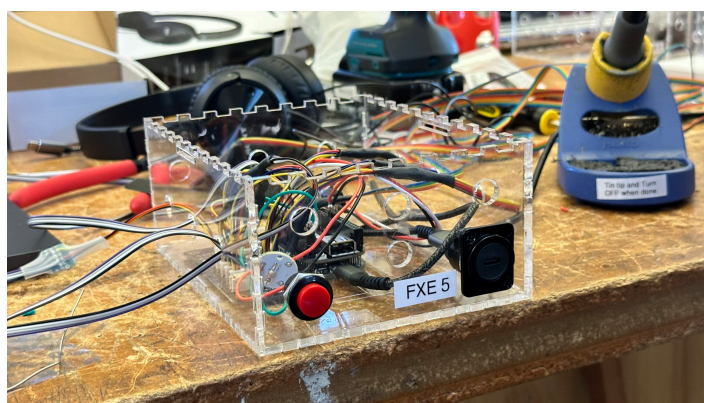


Fig. 2. Sculpture #4 embedded system



Fig. 3. From left to right: Sculptures #3, #6, #7



Fig. 4. Selection of the sculptures exhibited at the Polygon Gallery

3 Technical Notes

Format: Sound Sculptures/Exhibition/Installation

Mode: Interactive

Microcontroller: Bela

Number of Sculptures: 7

Size of each sculpture: [24" wide x 70" Tall x 12" deep]

Minimum distance needed between each mannequin: ~160cm

Provided by artists:

7 x garment-based instruments placed on the mannequins (each containing their own embedded systems, power, and audio output)

14 x headphones + cables

7 x power banks

7 x full sized mannequins with Metal Base [24" wide x 70" Tall x 12" deep]

1 x floor sign holder

Notes:

- The seven wearable instruments will be placed on mannequins

- Each mannequin uses two pairs of stereo headphones and can be interacted with two people at a time (headphones provided by artists).
- Each mannequin is powered by a power bank that can run up to 6 hours; we will have spare batteries to swap, in case the exhibition is longer than 6 hours per day.

4 Media Link(s)

- Montage: <https://www.youtube.com/watch?v=nx2zsm7cuRs>
- Sculpture 1: <https://www.youtube.com/watch?v=9xiUu6Z-5IY>
- Sculpture 2: <https://www.youtube.com/watch?v=ypZDg8CH2lc>
- Sculpture 3: <https://www.youtube.com/watch?v=3mtSER6Z6vQ>
- Sculpture 4: <https://www.youtube.com/watch?v=Y8POPSA1hok>
- Sculpture 5: <https://www.youtube.com/watch?v=nx2zsm7cuRs>
- Sculpture 6: <https://www.youtube.com/watch?v=fV8S9B7rwK4>
- Sculpture 7: <https://www.youtube.com/watch?v=gU0XcVj1oJs>

Acknowledgments

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Ethical Standards

This piece fully complies with ethical research guidelines. No human participants or animals were involved in the research, experimentation, or production of this work. Additionally, there are no conflicts of interest, financial or non-financial, associated with this work. All research was conducted in accordance with ethical principles and integrity standards, ensuring transparency and adherence to best practices in academic and scientific research.