NORTH CIRCULAR: EXPLORING ULYSSES, VOYEURISM, AND SURVEILLANCE IN AN INTERACTIVE SOUNDSCAPE

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Abstract

North Circular is a sonic environment and art installation that combines synthesized social media content with readings from James Joyce's *Ulysses* (1922) and interactive floor projections to encourage visitors to consider what the multilayered, hyperconnected, datafied city would look and sound like as constructed from our own data traces. Joyce's painstakingly mapped central episode, 'The Wandering Rocks', follows nineteen characters as they circulate the streets of Dublin, each lost in an interior monologue of thoughts and impressions. The episode presents an omniscient bird's eye view of Dublin and a multiplicity of subjective views and sounds (ambient and spoken) of the city, creating an apt metaphor for the heavily surveilled and data rich 21st century metropolis. The characters in 'The Wandering Rocks' interact with each other as their paths cross — listening in and being overheard, observing and being observed — in the social fishbowl that was Dublin a century ago.

1. INTRODUCTION

'Do you hear what I'm seeing?' — James Joyce

We have created a sonic environment that interweaves social media tweets and 'missed connections' with stream-of-consciousness passages from 'The Wandering Rocks' using directional and stationary speakers. Social media content is presented in the form of high quality, locally accented text-to-speech fragments to depict the city's psychic layer with aural impact. These media represent the public (external) voices, physical or virtual, that one encounters in the man-made soundscape of a city, while the stream-of-consciousness passages add an interior dimension. As we browse the internet, we are, in essence, internalizing other's thoughts. What feelings emerge when instead those fragments are spoken aloud? Is it strange to hear vocalizations of text features such as emojis or hashtags? Whose data are we listening to?

The darkness of the exhibit space and its emphasis on sound mirror the darkness and aurality of Joyce's later works, when his eyesight was progressively failing. Joyce does not represent Dublin visually in *Ulysses*, but through the minds of Dubliners and the gossip we overhear as they converse with each other. We do not see the city directly; we soak it up indirectly, through sound. The sound recordings of Joyce reading from *Ulysses* and *Finnegans Wake* demonstrate how important the aural experience is to his writing. What looks impenetrable on the page suddenly comes to life when read aloud. Visitors encounter the complex urban soundscape in an exhibition space where movements are tracked using BLE (Bluetooth low energy) beacon stickers that trigger floor projections. These abstract visual projections and their behaviour suggest crossed paths, a

strong theme in 'The Wandering Rocks' and a current focus in technologies of proxemic surveillance. We present an experience that explores participants perceptions of the exhibit's principal modalities (sound, visualization, and inter-action) and underlying themes of urban voyeurism and surveillance.

2. CONCEPT AND IMPLEMENTATION

2.1. Concept

The 'Wandering Rocks' episode of *Ulysses* presents both an omniscient bird's eye view of Dublin and a multiplicity of subjective views and sounds (both ambient and spoken) of the city, creating an apt metaphor for the heavily surveilled and data rich 21st century metropolis. The characters in 'The Wandering Rocks' interact with each other as their paths cross, listening in and being overheard, observing and being observed, in the social fishbowl that was Dublin a century ago. North Circular—which pays homage to *Ulysses* as a 20th century proto-hypertext for its non-linearity, interconnectivity, and synchronicity (Bolter et al. 1990)—is a temporary art installation that encourages visitors to consider what the multilayered, datafied, hyperconnected city of 2017 might look and sound like as constructed from our own data traces. The experience, which takes place in a dark room, combines participant tracking with interactive floor projections and a sonic environment composed of synthesized social media content and 'stream-of-consciousness' passages from *Ulysses*.

Big data can be interpreted in a number of ways. On the positive end of the spectrum, open data can be an enjoyable way of exploring both physical and virtual communities. Nearly everyone who uses social media admits to lurking—the practice of using your account to 'spy' on others without actually posting. So-called 'lurkers' are a majority faction in interactive situations of all types (Muller et al. 2010). On the negative end, however, data can equate to heavy surveillance, influencing behaviour and interfering in citizens' private lives, e.g. an emerging social credit system in China that computes citizen scores based on personal credit, social ties, and political affiliations (Schiller 2015). It is this duality we aim to highlight in our installation. Visitors enter an exhibition space where their movements are tracked, triggering floor projections that align with each user and vibrate when in close proximity with another participant. These abstract visual projections and their behaviour suggest crossed paths, a strong theme in 'The Wandering Rocks' and a current focus in technologies of prox-emic surveillance.

2.2. Implementation

Having initially considered video as a means of tracking participants in the exhi-bition space, we opted for BLE beacons (Estimote Stickers) for our high-fidelity prototype due to cost, mobility, and setup concerns. We attached the beacons to four different objects, referred to in the installation as 'talismans'—all bearing significance to the story told in Joyce's *Ulysses*. Talismans, used as nearables (Fig. 1), camouflage the tracking devices and facilitate greater immersion in the experience than might be permitted with mobile phones. In this way, and because we additionally chose to use Estimote Stickers as non-fixed, to be carried pas-sively by visitors throughout the exhibition space, visitor movements are tracked

without the need to download a supporting app or engage with a mobile device. Instead, North Circular uses three of its own Android phones, hidden in fixed locations within the space (Fig. 2), for detecting beacons through a process of trilateration (Pu 2011).

For the interactive floor display, North Circular features two projectors attached to simple wood mounting structures to visualize tracking data and indicate when two or more beacons are within close range of one another (Fig. 3). After some trial and error, we developed a visualization strategy that took advantage of the data being collected from the beacons, while conveying a sufficient degree of productive ambiguity. In this manner, indirect tracking of signal waves is used to indicate the position of visitors relative to the installation's fixed mobile device configuration; the closer a visitor comes to one of the three reference points, the smaller the radius of the resulting signal wave, as projected onto the exhibition floor. Waves, and corresponding beacons, are represented with different colors and appear to vibrate when visitors come within 50 centimeters of one another; the more participants within the same small area, the greater the vibration (Fig. 4). Numbers flash at irregular intervals in the area where wave patterns overlap, signifying the recalculation of coordinates as the positions of the beacons change.

Fig. 1
Participants chose from four talismans (a bar of lemon soap, a key, a book, and a potato), each with a BLE beacon (Estimote Sticker) attached, for carrying throughout the space of the exhibition.

Fig. 2
Installation diagram, showing projector and speaker setup, along with hidden, fixed Android phone configuration and trilateration system for detecting Estimote Stickers.
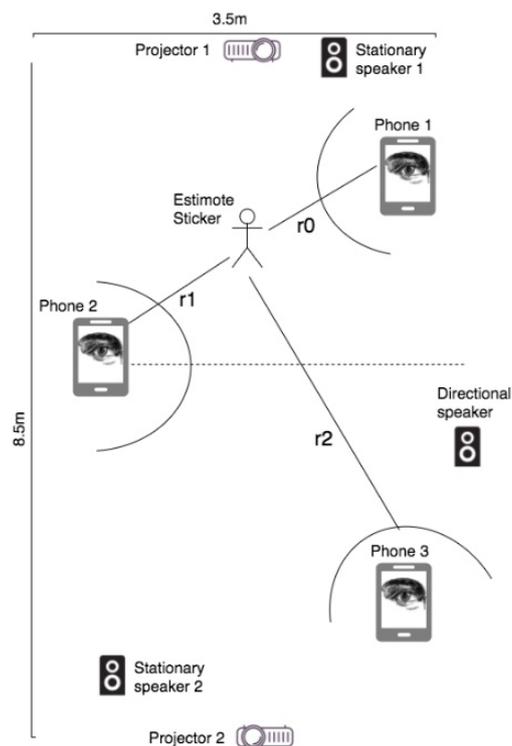
Finally, North Circular features a sonic layer that interweaves social media tweets and 'missed connections' with stream-of-consciousness passages from 'The Wandering Rocks' using both directional and stationary speakers. Social media content is presented in the form of high quality, locally accented text-to- speech fragments to depict the city's psychic layer with aural impact. These media represent the public (external) voices, physical or virtual, that one encounters in the man-made soundscape of a city, while the stream-of-consciousness passages add an interior dimension. As we browse the Internet, we are, in essence, internalizing others' thoughts. What feelings emerge when those fragments are spoken aloud instead? Is it strange to hear vocalizations of text features such as emojis or hashtags? Whose data are we listening to?

Fig. 4
Floor projection, show-
ing interactants in close
proximity and the resulting
vibration of the waves
(video from North Circular
user tests at https://www.
youtube.com/watch?v=Yb-
vK5Q0M9vA).
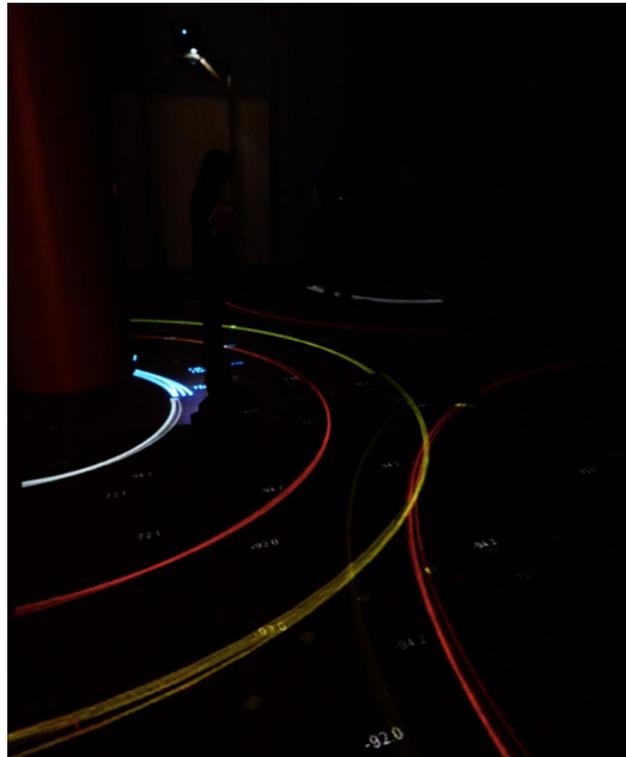
3. TECHNICAL RIDER

The North Circular installation requires a dimly lit space of approximately 8 x 4 metres. (If necessary these dimensions can be reduced or expanded.) We will bring the fully functioning prototype to xCoAx and install it in any room of adequate size with at least one wall socket. If available, we require two video projectors and mounting hardware. The setup time is 3-4 hours. For the brief demo we will invite 4 visitors to select a talisman and walk through the installation, interacting with audio-visual cues while the audience observes. Additional visitors will be invited to experience the installation during the conference in groups of up to 6 people, for approximately 5-10 minutes per group.

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