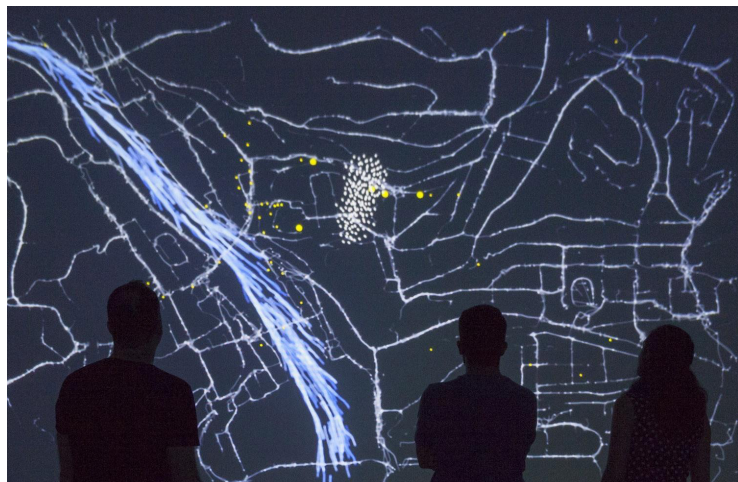**Tiago Martins**
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Planar: Discovering City Soundscapes

What characterises the sound identity of a city? What defines its most iconic soundscapes? How can these soundscapes be mixed, intertwined and played into creating a living, dynamic portrait of a city? *Planar* **is a multimodal portrait of the Portuguese city of Coimbra, interpreted through an audiovisual installation for the visitors to uncover and experience a new perspective of this city. The audiovisual composition emerges through an aerial view, with an abstract representation of its streets and paths in an evolving representation of the standard city map. Insect-like beings serve as intelligent, living paintbrushes who uncover those monochromatic streets, alongside the blue river that runs across the city. Bird-like beings wander above these streets, travelling together in a swarm that randomly weaves its journey through the map. Their passage unveils the city' sounding places, becoming narrators of sonic fragments in an ephemeral composition that depicts the main soundscapes of Coimbra.**

Description

Planar is an audiovisual installation that unveils the sounds of the Portuguese city of Coimbra through floating beings that randomly move over the city and listen to nearby sounds. The audience follows this journey from an aerial perspective, visualising these beings floating over a dynamic illustration of the city.

Planar emerged as a proposal for the participation in the fourth edition of *Dar a Ouvir. Paisagens Sonoras da Cidade (Give to Hear. City Soundscapes)*, an annual event that seeks to raise awareness of the act of listening as a possibility for discovery and knowledge by exploring sound as a creative medium. From July 11th to September 6th of 2020, artworks and performances from a multitude of artists were available to the public, fostering an auditory perspective of the city that reflects the role of sound in everyday life. This year, we proposed *Planar* (see Fig. 1) as a form of revisiting the city through an audiovisual portrait, based on a living representation of its streets, that confronts and rediscovers its most iconic soundscapes.

The installation comprises two main dimensions: the visual and the auditory. The visual system, implemented in Java with the open-source library Processing, implements swarm algorithms to simulate thousands of moving beings responsible for creating an abstract ever-changing painting of the city of Coimbra. The city paths are drawn by beings whose behaviour and movement follows the contrast between the white, vivid streets and the black, neutral background. As such, their movements naturally follow the defined streets and main areas, leaving a representative trail of their journey that draws a painting of the city. The life of these beings has its beginning and its ending in real-time during the installation, in a cyclic process of renewal where new beings gradually emerge to maintain the portrait alive. Besides the white-focused agents, the system also creates beings who draw the river area of the city in a bluish tone, creating a visual contrast in the representation that highlights this natural element that crosses the entire city (see Fig. 2). All these beings create a unique but recognisable painting of the city of Coimbra that emerges from their simulation. On top of the map painting, there is a flock of white beings flying with random direction, encountering the different soundscapes of the city. Each soundscape is visually represented with a yellow dot, placed in the respective coordinates where the sound was recorded, and are drawn with a blinking motion that mimics the city's lights (see Fig. 3).

Fig. 1. *Planar* (2020), audio-visual installation at Convento de São Francisco, Coimbra, Portugal.

For the audio element, implemented using the visual programming Max language, we created a dynamic composition that dwells on 61 soundscapes, which punctually rise and fall in a subtly ever-changing, flowing mixture. This dynamism is in constant dialogue with the visual element, portraying the uncovering journey of the flying beings. Technically, this dialogue takes place using the OSC (Open Sound Control) protocol for Processing to communicate with Max. A 10-file dynamic queue is the central driving force for the composition, responsible for loading and playing the sounds tagged by Processing, which sends two values for each sound: its index and distance to the swarm. This distance is sonically translated into two audio elements that define how each soundscape is played: loudness, that raises with the nearest sounds; and a delay effect, which becomes more pronounced with the farthest sounds. The queue is dynamically updated during the installation, with each visited soundscape echoing across the room while gradually fading, and impending sounds emerging with the swarm's journey that reveal the sonic city. The auditory composition is then a living mixture, weaved from a series of soundscape recordings of Coimbra's historical centre made by the sound artist Luís Antero, as well as recorded soundscapes by Aglaíze Damasceno, Mariana Seiça and Pedro Martins.

The physical installation of Planar was displayed in one of the rooms of the Convento de São Francisco, the most recent and major cultural centre of Coimbra. The installation was composed of four main speakers, arranged in a quadraphonic set, two projectors in two opposing walls, and a single, hidden computer to run the software structure. Continuously portraying the endless swarm jour-

ney over Coimbra's map, the installation invited its visitors to enter, observe and embrace their flight and sonic discovery in a dark environment, with the projectors providing the only source of light. Due to Covid-19 pandemic, the initially planned chairs for the visitors to quietly and more comfortably experience the installation were not included in the room. A video recording of the installation, portraying an audiovisual segment of the piece, can be found online,[1] as well as further information about the piece.[2]

Fig. 1. *Planar* (2020), audiovisual installation at Convento de São Francisco, Coimbra, Portugal.

Fig. 2. *Planar* (2020), audiovisual installation at Convento de São Francisco, Coimbra, Portugal.
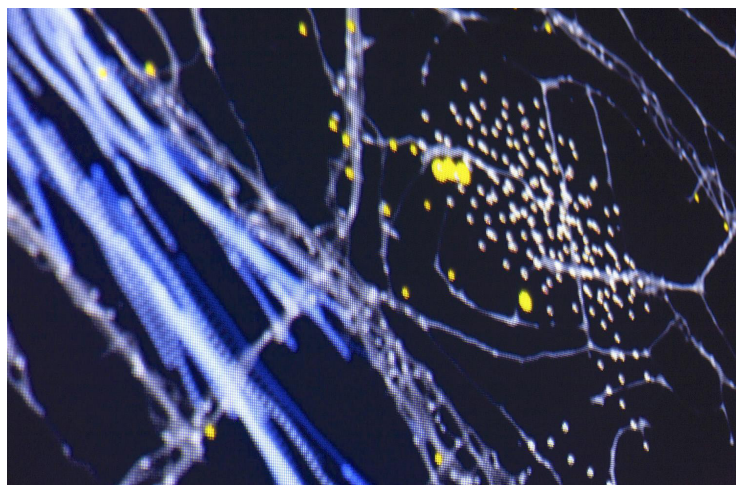
Although it is not a piece that directly feeds of real-time interaction with the ones who experience it, this artwork stands on a foundational flexibility that embraces multiple sound archives. The flying beings are adjustable to any environment, where different sound inputs can be chosen to be unveiled. This prevailing flexibility is a central characteristic of Planar, which we can even argue to be a universal sound-seeking system, explorer of not only a sonorous Coimbra, but also the sonic identity of every place with archived soundscapes. This capacity then expands to a full, scalable system, as the adaptability of its dimensions invites a multitude of audiovisual experimentations: the auditory mixture built over a dynamic structure, which embraces any intended sound for the flying beings to unravel, and the visual portrait, with its painting agents following whatever focus we define to draw a living portrait of a place. The system stands on its own, running isolated on a hidden machine with no listeners, or staged in a complex installation where these beings' journey comes to light, inviting its passing visitors to discover and reflect upon a city's sonic identity.