

Taufan Ter Weel

Taufan ter Weel is an architect, artist, and researcher with an interdisciplinary approach at the intersections of sonic practice, architecture, and socio-spatial research. Since 2015 he has been working as a guest teacher at the Architecture Philosophy and Theory chair of TU Delft's Faculty of Architecture and the Built Environment, where he also received his master degree in architecture in 2009. Currently, he is a PhD candidate at the faculty's Theory and Territories section, and is part of the Villard d'Honnecourt international doctorate and CA2RE+ programme. Furthermore, he works as an educational developer and lecturer (2018-present) and core team member (since 2019) at Hogeschool NTI and has worked as instructor and guest teacher (2009-2014) at The Hague University of Applied Sciences, where he earlier received his bachelor degree in 2006. He has carried out various artistic projects, performs live electronic music since 2001, and finished the Institute of Sonology's one-year course program (2011-2012) at the Royal Conservatoire The Hague.

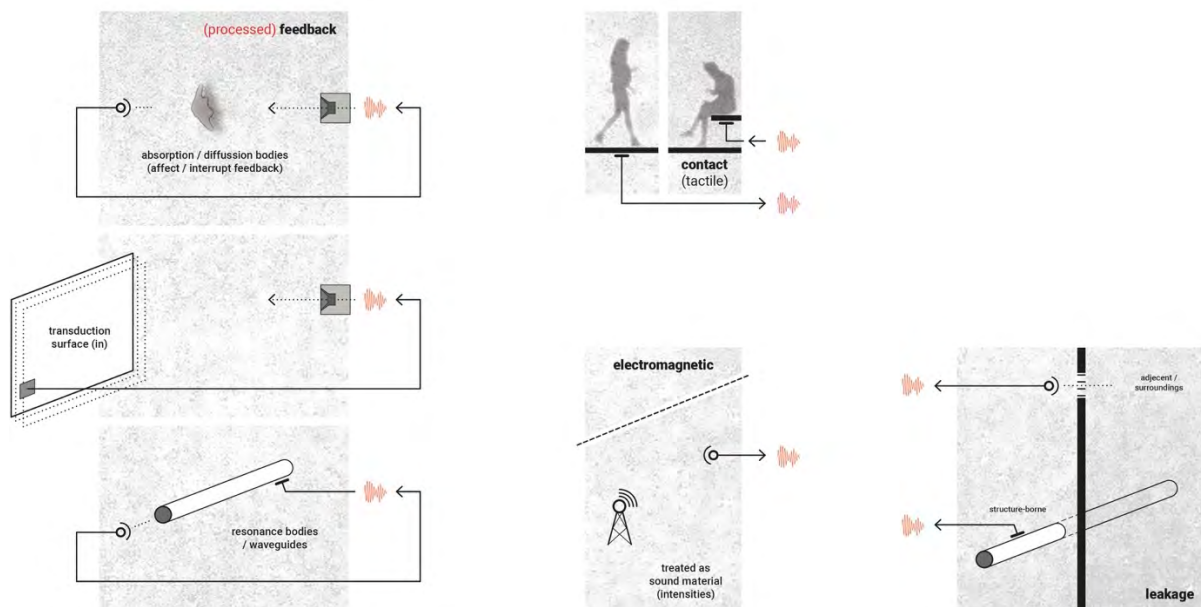
Abstract Machine

Anonymised document

Artefact

The proposed artefact is a site-specific sound installation which seeks to explore the relations between bodies, media technologies, and lived environment. It is a machine, a technical system of transducers and processing units, which is installed in the exhibition space. This machine is plugged into material structures, circuits, and infrastructure present on site, modifying the existing sound space. The system can adapt to different environments resulting in a series of situated installations.

The installation consists of a set of *transduction circuits* (microphones, loudspeakers, and tactile transducers – the inputs and outputs of the system and their positions in space) and *processing patches* (routed channels, modulation links, functions) which are determined through an acoustic exploration and analysis of the given site, which includes identifying signals and sound sources by means of listening through various types of microphones.



Transduction circuits which are used in the site-specific installations of the author. For the input signals, various kinds of uni-, bi-, and omni-directional, as well as contact, surface, and electromagnetic field microphones are used to pick up acoustic, structure-borne, and electromagnetic waves. Microphones have their own characteristics, polar patterns, and distortions (they are not neutral). They are employed to pick up specific sounds and exclude others. Output signals are spatially distributed to loudspeakers and tactile transducers attached to surfaces and objects functioning as resonators. (Image by author).

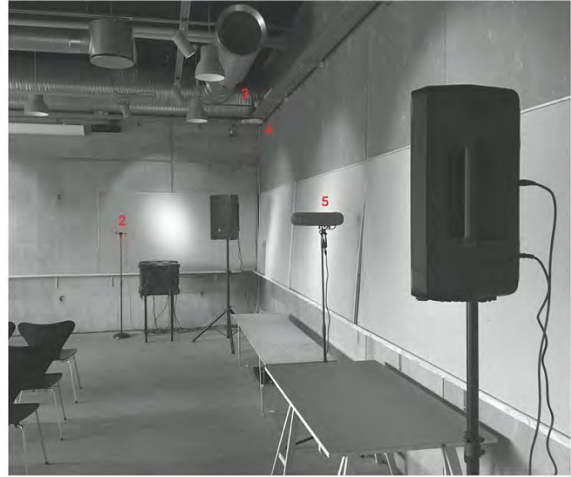
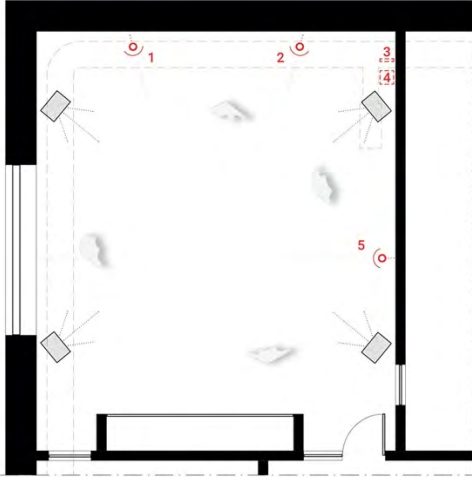
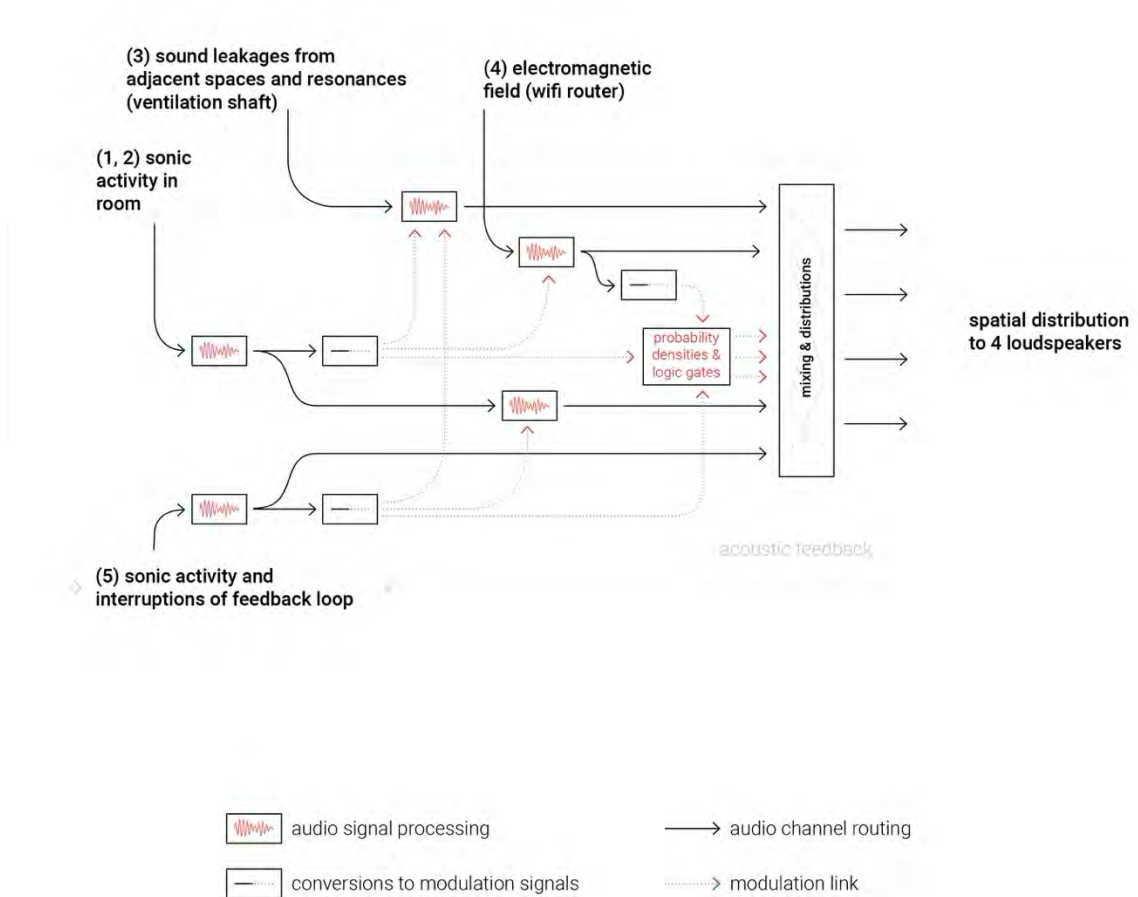


Image and plan of previously realised sound installation, 2023a. (Images by author.)



Simplified scheme of the processing patch in previously realised sound installation (2023a). The patches are made by combining a DSP modular system (Nord G2 Engine); a visual programming environment (Max for Live / MaxMSP) and the physical routing of channels (audio mixing console, A/D conversion). (Image by author.)



Image of another previously realised sound installation, 2023b. (Name of photographer omitted.)

Transduction circuits and processing patches

This site-specific installation only processes concrete sounds present on site in real time: it does not use fixed media (such as pre-recorded material). Input signals are processed and audio channels and modulation links are routed by means of processing patches. The combination of transduction circuits and processing patches allows for the emergence and exploration of new sonic and spatio-temporal relationships. Various input signals are treated as sound material and/or converted into modulation signals in order to draw different dynamic relationships.

Modulation signals are produced through detecting variations (in amplitude, phase, harmonic relations) of the input signals. Combined with the spatial position of the transduction circuits and the activity and movement of bodies, dynamic relationships become audible. Listeners can engage in this process.

Logic gates and functions trigger more instantaneous responses or spatio-temporal changes. For instance, when an input signal passes a certain threshold level or when multiple sound events occur at the same time, another process or spatial distribution is triggered. Or when an impulse is detected (at a regular or irregular time interval) from one input, a value from another input is sampled and hold until the next detected impulse occurs. Probable values and time intervals are mainly extracted from the input signals.

The installation aims to actively engage the listeners (audience) in the process of modulation beyond automated subservience and control – in modifying the existing sound environment, exploring the possibilities for another space, other machine-body relations – and makes audible some of the given site’s sonic complexity.

Amplified realities

The broader research explores the shifting relations between bodies, media technologies, and lived environment – the concrete entanglement between abstract space-time and social realities – through a spatial and diagrammatic approach based on sound and signal processing. It takes a transdisciplinary path – across architecture, philosophy, sound studies, and sonic practice – and combines a theoretical and design-driven approach.

The starting point is the notion that the human use of electromagnetic energy as carrier of information – which is basis of signal processing (from early electric telecommunication and radio to ubiquitous computing) – radically transforms and complicates the relationships between bodies, media technologies, and lived environment. Transmission with the speed of light modifies proximities, allowing for seemingly unconfined communication and remote control, changing habits and perception. Coupled with the increasing precision of clock time, signal transmission enabled radio-navigation and complex sensing and automation systems. The increasing dependency on media technologies to carry out or automate activities (to sense, build, and change our environment) and the interdependencies between them, coupled with the decreasing clarity of their inner workings, which is in part inherent in their expanding complexity, creates the condition for unprecedented forms of *automated subservience* and *ubiquitous control*.

Ubiquitous computing and algorithmic processing change the modes of governance. This process cannot be understood solely in terms of signification, representation, or the discursive. It is needed to also recognise the material, ontological, or machinic dimensions – the asignifying semiotic apparatuses, the signals and algorithms.

Practical notes

- Ideally, the specific place where the system can be installed and technical requirements and aspects are coordinated in advance with the conference organisers.
- The installation can run throughout the entire duration of the conference (if desired).

Design Driven research approach

An experimental approach to sound and signal processing in artistic practice (in particular, spatial practice) allows for exploring the intensive and machinic dimensions in the production of sense and subjectivity. This attentiveness to vibrational energy resonates with the turn to affect and ontology in critical theory and philosophy.

In my work, theoretical and design-driven research are tightly connected rather than isolated from one another. Philosophical and theoretical concepts (in the realm of cybernetics and new materialism, among others – e.g., control, modulation, transduction, algorithmic governmentality, the machinic unconscious, and abstract machine) are explicated in part through practical experimentation.

The design-driven research component does not directly address the broader problematics (automated subservience and ubiquitous control) but allows for the exploration of the machinic or asignifying dimensions in the production of sense and subjectivity (modulation beyond the paradigm of control).

The applied transduction and processing techniques are in themselves not new but draw on a long tradition in sound art and experimental electronic music composition. The original or experimental quality lies in combining a spatial, sonic, and diagrammatic approach which derives from a focus on signal processing.