

AMBIENT: Bodily Entrainment to Audiovisual Rhythms

AMBIENT aims to investigate how rhythms influence people's bodily behaviour. A ticking clock is an example of a sonic rhythm. A blinking light is a visual rhythm. Such auditory and visual rhythms may fuse into complex audiovisual rhythms in an environment. The hypothesis is that such audiovisual rhythms influence people, consciously or unconsciously. This will first be studied through month-long observation studies of people working alone in their offices. We will monitor the audiovisual rhythms quantitatively and compare these to both qualitative and quantitative responses from the participants. Then we will move to study how people work together through online collaborative tools. The aim is to develop a coherent theory of the audiovisual and spatiotemporal nature of environmental rhythms. Finally, we will explore creating an interactive system for recreating audiovisual rhythms in a telematic classroom.

Fagområder

Humanoria, Matematikk og naturvitenskap, Andre, Samfunnsvitenskap, Teknologi

Forskningsansvarlig institusjon

Universitetet i Oslo / Det humanistiske fakultet / Institutt for musikkvitenskap

Prosjektvarighet

01.12.2021 — 30.11.2025

Formål

The primary objective of AMBIENT is to understand more about bodily entrainment to audiovisual rhythms in both local and telematic environments. This will be studied within the context of everyday workspaces (offices and classrooms). The primary objective can be broken down into three secondary objectives: (1) understand more about the rhythms of in-door environments, and make a theoretical model of such rhythms that can be implemented in software (2) understand more about how people interact with the rhythms of in-door environments, both when working alone and together (3) explore how such rhythms can be captured and (re)created in a different environment using state-of-the-art audiovisual technologies

Nytteverdi

The outcomes of AMBIENT include a toolbox for audiovisual ambience recording and analysis, empirical databases, taxonomies, models and related software, publications, and two PhD dissertations. It is expected that AMBIENT will have different types of impact: - scientific: theoretical impact in the fields of soundscape studies, musicology, music psychology, and human movement science. Tool-based impact in the fields of informatics and human-computer interaction. Potentially also conceptual impact in fields such as philosophy, architecture, medicine, and physiotherapy. - societal: impact on the design of in-door environments through increased knowledge about audiovisual rhythms and their effect on people in their

workplace. Improved understanding of telecommunication and its influence on people's well-being and working life. This may also contribute to reduced travel while at the same time increasing the 'feeling' of being together.

Finansiering

- Norges forskningsråd (NFR) FRIPRO

Etiske retningslinjer

- Generelle forskningsetiske retningslinjer
- Naturvitenskap og teknologi
- Samfunnsvitenskap, humaniora, juss og teologi
- Helsinkideklarasjonen
- Vancouveranbefalingene
- Betaling til deltakere

Observations of people working in their offices

Beskrivelse

WP2: Observation study of individuals in their offices This work package will study peoples' experiences of their offices' rhythms. The plan is to run three observation studies (indicated as a/b/c in Figure 3), each one month long and with three participants. These will give an in-depth understanding of a total of nine different offices and their usage. Each of the observation studies will have the same three phases. The first will focus on pre-observation interviews and questionnaires. This will be followed by a month-long quantitative data collection using a 360-degree camera and an ambisonics microphone mounted in the office ceiling. For privacy reasons, only a set of audiovisual features will be extracted and stored (see WP5). Participants will also wear an activity tracker during the period that they spend in the office space, which will capture continuous heart rate and motion information. Together these measured data will provide both 'internal' and 'external' measurements of the participants' activity in their offices. Additional self-reports and a final semi-structured interview will give qualitative information about people's experiences. We will use machine learning and statistical analyses based on the work of González Sánchez et al. (2018, 2019) to look for correlations between bodily rhythms (heart beats, movement patterns, etc.) and the environment (if any). The qualitative data will be used to get insight into the participant's subjective experience of their working environment.

WP3: Observation study of physical-virtual workspaces This observation study will build on knowledge from WP2 and will explore the concept of physical-virtual coworking. The idea is to recruit three pairs of people that normally work together, and set up a continuous audiovisual stream between their workspaces. It is often common to think of video conferencing as something turned on for meeting. Here the idea is to explore two physical rooms that are virtually connected for a sustained period. It resembles a shared physical office, except that it is set up as a shared physical-virtual space. This will be done by running three month-long experiments, each with two people and offices. The data collection will be similar to that of WP2. The

first week (indicated as a/b/c1 in Figure 3) will be an observation study of each participant's regular workspace, without being connected, and will serve as the 'baseline' condition. Then there will be two weeks (a/b/c2) during which the two workspaces will be continuously connected using a video conferencing system running on separate stationary PCs. During the last week (a/b/c3) the partners will be disconnected again and data from this week will act as a post-experiment 'control' condition. The main analytical focus will be on understanding more about the different experiences of working in a regular office, instead of a physical-virtual office space. We will use both statistical and machine learning techniques to look for entrainment between people, and whether this can be traced back to any of the environments' properties.

Datatype

Video, Tekst, Bilde, Lyd, Annet

Språk

Engelsk, Norsk

Nøkkelord

motion capture, activity measurement, physiological sensing, sound recordings, heart beat, self-reports

Data om personer

Ja

Er det noen andre grunner til at dataene dine trenger ekstra beskyttelse?

Nei

Kategorier av personopplysninger

Anonyme

Utvalgets størrelse

30

Konfidensialitetsklassifisering

Åpen

Innsamlingsperiode

01.09.2022 — 30.06.2024

Innsamlingsenheter

- Kamera (foto og video), institusjon
- Kamera (foto og video), privat
- Lydopptaker/diktafon, institusjon
- Lydopptaker/diktafon, privat
- Smarttelefon/nettbrett, institusjon

- Smarttelefon/nettbrett, privat
- Spørreskjema - elektronisk
- Spørreskjema - papirbasert
- UiO Nettskjema

Metode

Intervju, Observasjon, Opptak, Transkripsjon, Sammendrag, Annet, Eksperiment, Selvadministrerende tekst eller dagbok, Selvadministrerende spørreskjema, Målinger og tester

Størrelse

10000000 MB

Kommentar

The collected raw data will be large due to audio/video recordings. However, these media files will primarily be used for feature extraction, so the post-processed data will be smaller.

Format

csv, txt, xls, pdf, jpg, png, gif, tif, svg, flac, aif, wav, avi, mp4, ipynb

Programvare

Matlab, Python, SPSS, LibreOffice, Excel

Metadatastandard

Dublin Core

Lagring

- Ekstern harddisk (etc.), institusjon
- PC - Fellesområde, institusjon
- PC - lokal disk, institusjon
- Skytjeneste, institusjonsavtale

Overføring

- Unit FileSender

Arkivering

Ja

Grad av åpenhet

Åpent

Lisens

CC-BY

Arkiv

- Norwegian Centre for Research Data