

Participatory artistic experiences and practices in technology to improve digital health literacy.

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Introduction

This applied artistic research project critically examines the intersection of AI, data literacy, and technologically mediated interactions within participatory artistic environments. As part of Work Package 2 of the interdisciplinary initiative Healthy Living as a Service (HLaaS), this research operates within the Professional Doctorate Arts + Creative framework, which emphasizes creative research in complex social contexts. It interrogates how AI, data collection, and algorithmic systems shape data literacy, perception, and control within technologically enhanced spaces.

At the core of this investigation are AT-Labs (Art & Technology LABs)—immersive, digitally mapped environments. These spaces, shaped by sound, light, and performative interaction, function as experimental fields. Exploring how bodily engagement and artistic experience can reveal, challenge, and renegotiate our relationship with digital infrastructures by embedding participants within these dynamic environments. The iterative nature of the AT-Labs—developed over four years—allows for ongoing critical reflection and artistic reconfiguration. This poster presents insights from the first year and a half, the first two lab environments where we focused on developing an operative baseline of participants and the interactive technologies utilized.

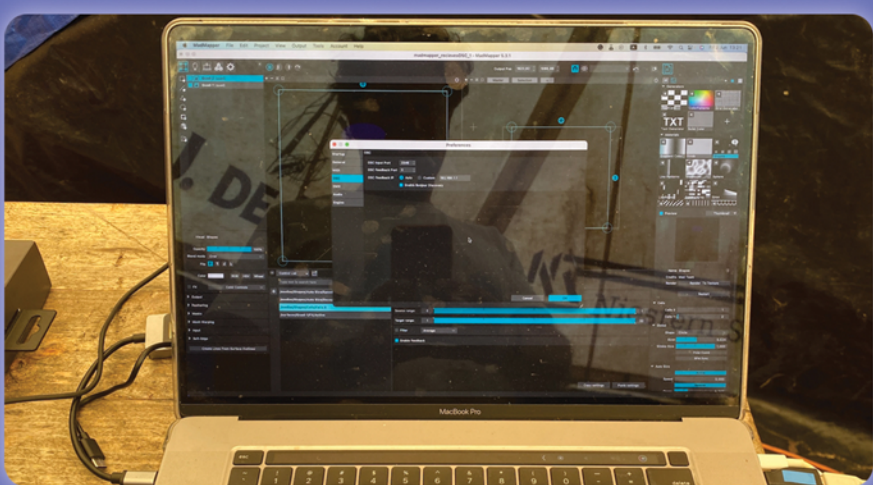
By contributing provocative artistic strategies to the HLaaS Consortium, this project seeks to investigate the conditions under which AI-driven models define, regulate, and enforce well-being. Examining the tensions between technological determinism, digital literacy, and sovereignty, offering alternative ways of thinking about AI's role in society.

Methods

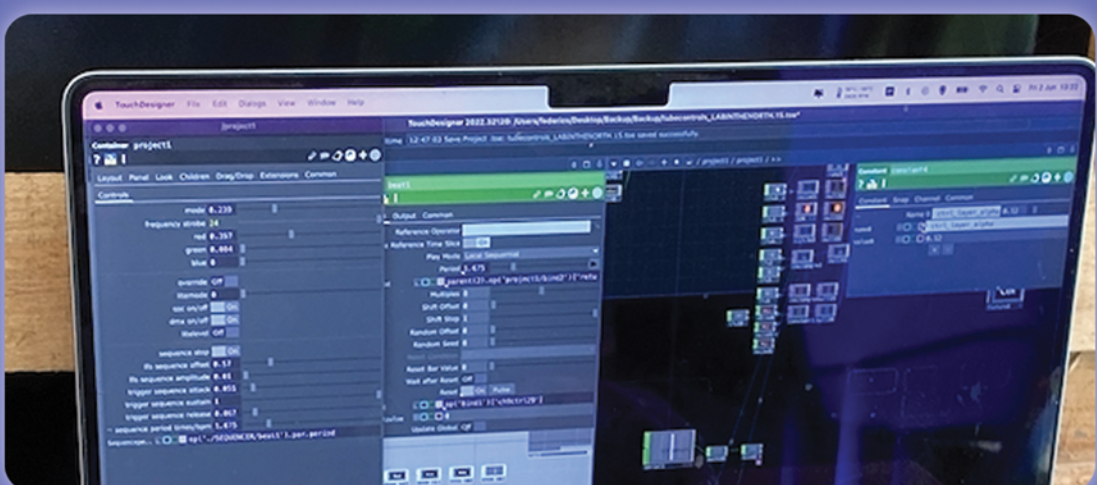
This project embraces two approaches. On one hand, a combination of anonymized surveys and qualitative interviews with participants helps to contextualize their position regarding their use of health sensors, their understanding of the concepts of digital literacy and digital sovereignty, and their familiarity with new media art. On the other hand, an autoethnographic view of art-making provides direction regarding the diverse artistic forms that can be taken in further iterations.

Inhabitants of the northern region of the Netherlands, specifically in the province of Groningen, could participate in the first two iterations of the AT-Labs at Stichting Landgoed de Camping in 't Zandt and Forum Groningen. Fifty-two participants entered the custom-built space to interact with light and sound through sensory technology in the small regional town of 't Zandt, while forty-six engaged with the exhibition set up at Forum Groningen, located in the capital city of the same name.

Two interactive settings were established: the first utilized sensors to collect movement and positional data, while the second group of sensors gathered participants' heartbeat data in real-time. A translation of this data through different software enabled participants to influence the movement, intensity, and other parameters of the light and visuals, as well as to create and control sound and its parameters, specifically its spatialization on the x and y axes. Furthermore, by sensing their heartbeat, participants experienced feedback in the same light and sound parameters.



Mad Mapper software setup



Touch Designer software patch

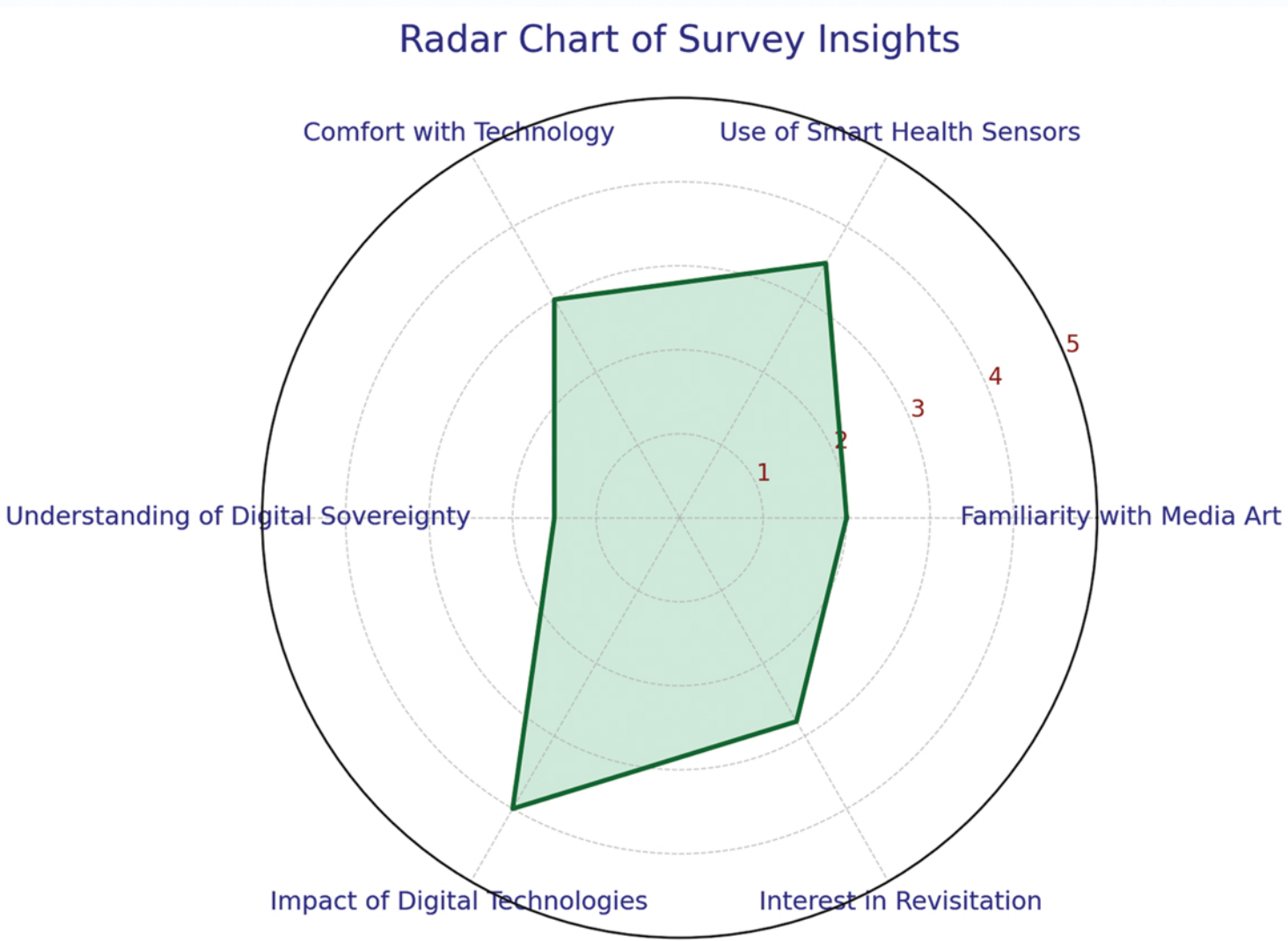
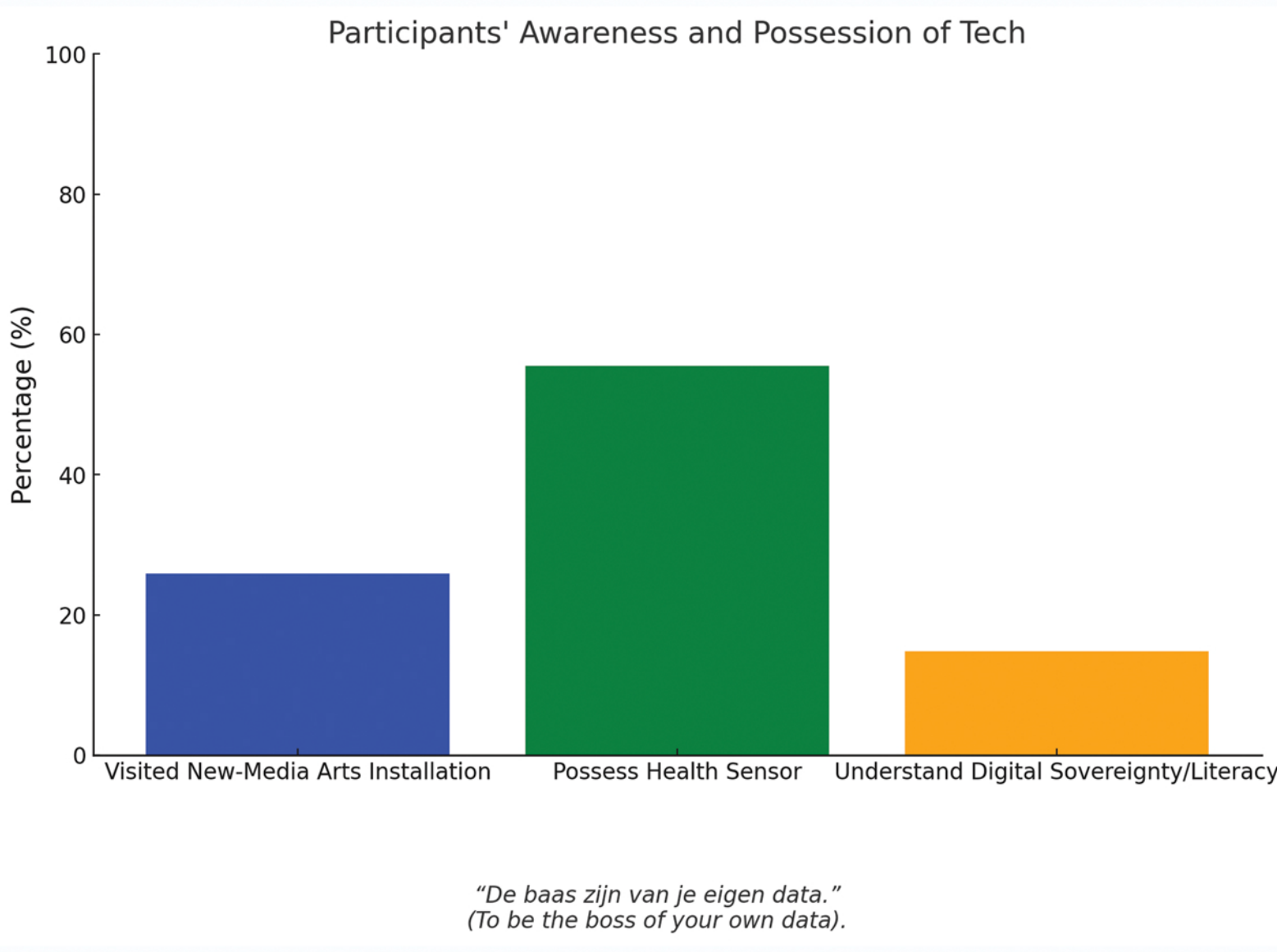


Garmin sensor, IoT sensors



1st iteration AT-LAB, immersive, 't Zandt, Groningen, NL

Survey answers insights



Bios

Agustin Martínez Caram is an interdisciplinary artist and researcher currently pursuing a Professional Doctorate in Artistic Research at Hanze University of Applied Sciences in the Netherlands. He creates immersive audiovisual experiences, performances, sound pieces, and visual art that evolve from his transdisciplinary collaborations and research field works. Recent topics include AI-assisted healthy lifestyle habits, digital literacy through immersive ambisonics, and exoplanetary life search in terrestrial analogues. Incorporating real-time data and interactive elements, his work fosters engagement and critical reflection on the evolving role of technology in contemporary art and society. He also contributes to artistic education by curating exhibitions, teaching, and developing research-driven creative frameworks.



The "Healthy Living as a Service" (HLaaS) project is a Dutch initiative using smart technology and AI to promote sustainable, healthy lifestyles. It develops a toolbox integrating wearable and environmental sensors to track health indicators like activity, heart rate, sleep, stress, and air quality, informing personalized coaching and interventions.

HLaaS operates through specialized working groups: **"Smart People"** (sensor selection), **"Smart Data"** (AI-driven insights), **"Motivated People"** (behavioral motivation), and **"Healthy Cities & Villages"** (urban planning for health). Collaboration is central, involving citizens, researchers, artists, and companies in field labs where users engage with and co-create solutions. Led by institutions like UMCG, University of Twente, and Hanze University, alongside industry partners, HLaaS makes healthy living accessible through **"innovative, user-centered approaches"**.

The PD Arts + Creative is a Dutch research program for artists and designers, focusing on practice-based artistic research. Developed by 15 institutions, it offers a four-year trajectory that integrates artistic practice, academic inquiry, and societal impact. Candidates conduct research through their creative work, exploring new methodologies and critical perspectives. The program provides tailored supervision, collective learning opportunities, and platforms for public dissemination. Graduates contribute to innovation in the arts, education, and creative industries, shaping the future of artistic research.

Results

Participant Background:

- The majority of participants were naive participants, meaning they had no prior experience with similar installations.
- Only 25.9% had previously visited a new-media arts installation between 1 and 5 times, indicating that most were unfamiliar with interactive digital art experiences.

Technology Familiarity:

- Despite the lack of experience with new-media art, more than half (55.56%) of participants owned a health sensor (e.g., smartwatches, fitness trackers, or medical monitoring devices).
- Understanding of Digital Literacy/Sovereignty was significantly lower—only 14.8% of participants stated they had knowledge of the concept, highlighting a gap in awareness regarding data autonomy and digital rights.



2nd iteration, Forum, Groningen, NL

Engagement & Experience:

- Participants showed strong engagement with the installation, with ages spanning from 10 to 93 years, demonstrating an inclusive and broad appeal.
- The volumetric technique (which displays three-dimensional forms in real space) used in the first iteration of the installation provided a more embodied experience, allowing participants to interact physically with the system.
- This led to a heightened sense of empowerment, as participants felt more in control of their interaction with the data-driven system.
- This sense of empowerment was articulated in feedback, notably with the phrase: "De baas zijn van je eigen data." = "To be the boss of your own data."



2nd iteration, Forum, Groningen, NL

Recommendations

The next iteration of AT-Lab1 will focus on sound as the central medium, adding vertical spatialization (z-axis) through ambisonics. This aims to create a more tangible and embodied interface, enabling participants to physically engage with an intangible medium. We will investigate how this affects their perception of digital data. In addition, a new dissemination strategy will be developed—one that aligns with artistic research values by including an artistic output as multimedia video art. Finally, findings from AT-Lab1 will contribute to a broader analysis alongside results from:

- AT-Lab2: AI literacy in creative practice (Fine Arts Master's students)
- AT-Lab3: AI literacy in public space (Placemaking)
- AT-Lab4: AI literacy in studio-based artistic practice

Find out more and stay up to date: www.hlas.nl
Learn more about the PD : www.pd-arts-creative.nl
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