

Reflexive Research on Performance Art Documentation through EEG. A Visual Essay.

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Reflexive research on performance art documentation through EEG

A visual essay

Bio: *Marija Griniuk is a Lithuanian artist and a PhD student at the University of Lapland, Finland. Her research concerns new channels of performance documentation derived from usually invisible biometric data, such as brain activity.*



Abstract.

The normatives of performance documentation through writing, photography, audio, and video have not changed since the very beginning of performance art (Griniuk, 2019). The states of relaxation or attention of the performer during live action are not easily captured through photo, video, or sound documentation. Technological developments that have made EEG available on a consumer level within the reflexive research in this paper provide very intimate yet abstract information for the viewer regarding the bodily and mental states of the performance artist during live events. This data can be saved. Documentation provides a detailed record of text- and narrative-based performance art events. This paper presents three cases within the reflexive research on the documentation of performance through photography, video, sound recording, and the live brain activity of a performing body recorded and visualised by an EEG device via a program in processing. The aim of the research is to investigate the process of documentation via recording visual images and sounds of the performance art event setup, along with the recording of the performer's live brain activity. I also explore how this data can be reconstructed after the performance. The reconstruction of data related to a performer's brain activity for each case-performance is synchronised with the sound and the video footage. The results of this reflexive research can be useful for performance artists who wish to self-document their performances.

Keywords.

Performance art, text-based performance, reflexive research, documentation, EEG.

Background.

This study concerns documentation processes where performance is recorded combining photo, video, and sound documentation and is combined with data from the live brain activity of a performer immersed in text- and narrative-based performance art events. The brain activity data was restored into animated images, graphs, and sounds after the performances. This documentation method can reveal the performative setup and the brain activity of the performer during the event and can be used by performance artists to document their performances. This paper presents three reflexive research cases in which I use myself as the performer who is immersed in their performance is documenting the art event. During each of the cases, data are collected in the format of documentation material and material that helps me to unveil the viewer's perception of this documentation process. The three cases demonstrate how documentation can be obtained live, as well as how the performance event can be remediated from photo, video, and sound data, as well as the live brain activity of the performer.

The first case is *The Tests. Techno-voyeurism into a performing body*, performed in Riga, Latvia (Art Future/Future Signs 2019, September 11). This case is an investigation into the documentation process in the large-scale art biennial format. I collect data to study the viewer's perception of the performance and documentation setup. In the second case, I practised documenting live events using sound and EEG data at the 8th Conference on Modern Art in Torun, Poland, in 2019 (October 10). The aim was to learn if documentation through sound and data from live brain activity could be useful for documenting a conference presentation. The third case is again *The Tests. Techno-voyeurism into a performing body*, this time performed at the Gallery Kilo in Rovaniemi, Finland. I gave two performances (on January 27 and February 10, 2020) as part of my solo show. These performances—along with the exhibition, which was an annotated portfolio of my previous performance and presentation in Riga, Latvia and Torun, Poland—gave the audience an overview of how the software works to perform EEG documentation during the live events.

Aims.

The primary aim of this work is to explore how reflexive research can be integrated into performance art documentation using EEG based on the three of my text- and narrative-based performances. I also explore how these case-performances can be reconstructed via remediation into video, image, sound, and animated data from EEG. *The Tests. Techno-voyeurism into a performing body* follows my previous five years of field test work performances (*Mark Making*).

Methods and analysis.

Art-based research, according to Leavy (2009), is produced and explained by images, sounds, or performance. My project *The Tests. Techno-voyeurism into a performing body* is an ongoing art-based research project in which the three cases presented in this article are conducted as reflexive research. As a performance artist, I use myself as the case study for this research; as such, I produce reflexive research (Etherington, 2019, p. 47). Reflexive research is a term describing research that builds upon the experience of the researcher (Etherington, 2019, p. 47). Reflexive research not only provides knowledge about a topic, but it also explains how that knowledge was acquired (Etherington, 2019, p. 47). For me, reflexive research is a means of bridging my research on performance documentation and my practice as a performance artist. As explained by Etherington, reflexive research is "constructing a bridge between research and practice" (2019, p. 47). So, I use myself as the performer within my performance events, produce data, and analyse it as a researcher. Etherington (2019, p. 47) describes reflexivity as more than self-awareness. Reflexivity can create the dynamics of informing decisions, actions, and interpretations based on data from interactions between the researcher-facilitator and the participants.

I work with text- and narrative-based performances, and I document my performances using biometric data from the live brain activity that is recorded while I perform. This is done using a consumer EEG device and a program specifically developed for my research. Furthermore, sound, photo, and video documentation are being recorded. The video documentation is done in the space of the performance by an assistant. Sound documentation is done by the sound recorder from the performance area and is used for ensuring the highest quality of sound. During the performances, surveys and interviews from the audience are collected, and participant/facilitator observations, along with my diary, are produced.

A reflexive analysis of this data is conducted by examining each of the cases in order to understand the audience's perception of the documentation process through sound and video recording, along with the visualised data from EEG. Each subsequent session was slightly redesigned based on the feedback of the previous one to explore how EEG data recordings can be integrated into performance artwork in a way that is best for the audience. For example, in the first performance session at the Gallery Kilo in Rovaniemi, I introduced the technology within the documentation of the performance at the end of the session. Based on the feedback from the audience members, for the next performance, I moved this part to the beginning of the session. Art-based research involves artistic work as part of the data analysis and interpretation (Jokela & Huhmarniemi, 2018, p. 17). The video, sound, and EEG data recordings were labelled according to the case-events. After the performance, the EEG data were remediated into video, image, and sound and presented as artistic work (in the exhibitions and annotated portfolio), as was done at the Gallery Kilo, Rovaniemi (2020) in the format of a solo exhibition. The next presentation is planned at the Supermarket Art Fair in Stockholm in the fall of 2020.

Terms.

Performance refers to the live activity of a performing body and involves the audience and contains restored behaviour (Schechner, 2013, p. 34). My performances combine art writing with critical and political content, sound, and interactions with the audience, and they are inspired by spoken-word tradition (Price-Styles, 2015).

In this paper, the term *documentation* stands for *documentary documentation* (Auslander, 2006, p. 1); it provides a record of the performance with an audience and serves evidence that the performance event took place (in the public space).

Mark Making performances.

Mark Making performances involve live brain activity visualisations as a part of the live text- and narrative-based performance. This is either facilitated as a one-on-one interaction with an audience member or performed on a stage.

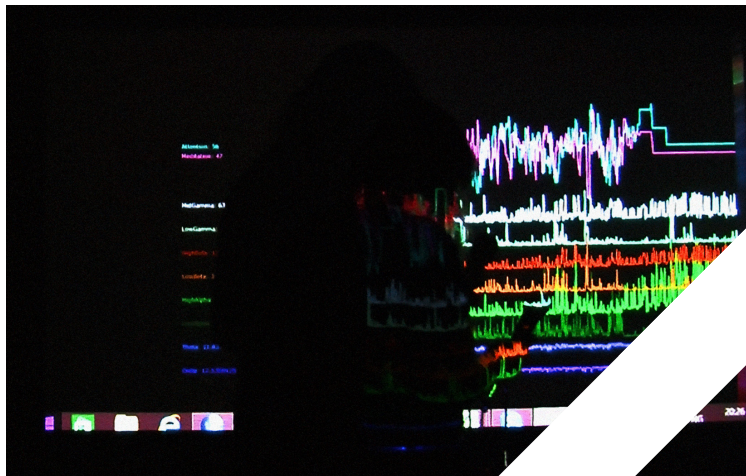


Image 1. Marija Griniuk "Mark Making" (2015), Performance-Rum in Århus, Denmark. Photo: Marija Griniuk



Image 2. Marija Griniuk "Mark Making" (2017), Gallery Meno Parkas, Kaunas, Lithuania. Photo: Antanas Untidy.

The Tests. Techno-voyeurism into a performing body (2019-present) builds on my *Mark Making* performances (2015-2019). *Mark Making* was a performance project designed as a collaboration with performance designer and computer scientist Tue Brisson Mosich to visualise the embodied state of the performer during live text- and narrative-based performances. In my *Mark Making* performances, I would speak or read text, either to one participant at a time or to all audience members as a group, and I would wear an EEG device on my head while I performed. The EEG device and software utilised during these live performances showed the audience members my internal state, in an animated way (i.e., via a graph), as I performed.

I performed *Mark Making* for the first time in 2015 at PerformanceRum in Århus, Denmark. This was followed by several other performances, including *Territory* and *The Electronic Carnival of the Eternal Touching*. These performances were done within the context of showing my states of mental relaxation and focus via a screen. In all performances, due to ethical considerations, the EEG device was worn only by me. The performances were successful in the sense that the software was operational throughout the performances, and the audience members were curious about the image and engaged in conversations after the performances.

Showing the inner state of the performer during the performance seems to be a daring element of the performance design, and propels the format of performing further, beyond the body of the performer into their state of mental inactivity or focus. The ambivalence of the surface of the performance, which can easily be documented by photo or video, and the inner condition of the performing body urged me to conduct the research *The Tests. Techno-voyeurism into a performing body*. Since September 2019, I have been testing the possibility of documenting my text- and narrative-based performances using my performing body as the case study subject. The software used for *Mark Making* is now being developed further within my research project on performance documentation via EEG.



Brain activity and EEG.

Using EEG, it is possible to read data showing, for example, whether the performance artist is relaxed or concentrated. EEG is a method of measuring electrical activity in the brain. As explained by Vuust (2007, p. 187), when many brain neurons activate at the same time, the result is a small electrical charge, which can be measured using EEG by placing electrodes on the skull. When using EEG, brain activity is divided into frequencies, such as delta, theta, alpha, beta, and gamma. Alpha waves reflect a state of physical relaxation and mental inactivity (Noachtar et al., 1999). Beta waves reflect a focused mental state (Krugman & Hartley, 1970, p. 187). Gamma waves reflect the performance of cognitive tasks (Jokeit & Makeig, 1994, p. 6339). In the case of my study, I currently use data labelled as "attention" and "meditation," which are algorithmically interpreted from the alpha, beta, and gamma channels by the NeuroSky device. It is technically possible to write your own algorithms to interpret the EEG data, but the built-in algorithm provides an easy entry point. EEG is normally associated with clinical tests. However, Mostow et al. (2011) describe the successful (in the terms of its accuracy) use of EEG data retrieved from a school classroom setup (i.e., outside of a clinical environment). I also use EEG outside of a clinical environment—in the art event spaces.

Description of the software.

I use a custom prototype application designed to assist in visualising EEG data. Its purpose is twofold: to extract and save data from the EEG device for later use and to provide a mediated output of this data. The output can be live or can be acquired by playing back saved data. The initial design was informed by the notions of visceral, behavioural, and reflective design, as described by Norman (2004, pp. 65-96).

Exploring through The Tests. Techno-voyeurism into a performing body.

Case 1: Riga, Latvia (Art Future / Future Signs, 2019).



Image 3. Marija Griniuk. Case 1. Still from the documentation in the format of video, containing video and sound recording and data from EEG. Filmed by: Nikita Alekseev. Edited by: Marija Griniuk.

In case one, my performance took place at the Paradox Fine Art European Forum Biennial Conference Riga as part of Art Future/Future Signs 2019. The book *BiteArchive* was my then-newly published research on the photo archive of the first Lithuanian festivals of happenings and actions, AN 88 (1988) and AN 89 (1989), preserved by artist Arvydas Baltrūnas (Griniuk, 2019). I introduced the book in one-on-one performative sessions during the event opening.

In addition to the performative part and the book itself (which later became part of the exhibition), I documented my performance using an EEG device that measured my live brain activity. The connectedness of the EEG device was perfect throughout the session. The computer was situated approximately 80 cm from me and the EEG device. The documentation process was visible to the audience, as it was displayed on a large TV screen, which served as a background for my performance. Furthermore, a camera and sound recorder were set up by the camera operator in front of the performance area to complement the documentation process. People who wanted to interact with me entered this setup (which, to me, seemed to reflect the performer's "obsession" with documentation), and the documentation process seemed to dominate the performance itself (note from my diary).

The primary purpose for collecting data during this performance was to explore whether what was being transmitted on the screens was understandable from the audience members' perspective and whether the projected images disturb the narrative of the performance itself. Self-evidently, visually encountering such a performance already sets a lot of visual signs. Therefore, most likely, only people with a particular mindset would want to participate. Those who entered the performance area expressed their consent to be anonymised in the edited video and sound material. (I edited the data to produce a short five-minute excerpt from the event that was presented in two later exhibitions.

One of these took place at the Meno Parkas Gallery in Kaunas, Lithuania (2019), and the other took place at the Gallery Kilo in Rovaniemi, Finland (2020) (note from my diary).

I prepared the survey for the participants of one-on-one sessions in an attempt to investigate whether the image distracted them from the performance. Due to this format and the rush put on participants to fill out the questionnaires immediately after the performance, only five completed questionnaires were obtained. Based on the answers, I concluded that the image was dominant and was understood as the central part of the performance. As such, in this space, the documentation setup became the performance for the participants while the narrative content and its meaning faded into the background.

Case 2: Torun, Poland (8th Conference on Modern Art in Torun, 2019).

My presentation for the second case took place at the Conference on Modern Art in Torun, Poland. The event revolved around historical art content. My presentation dealt with the influence of the Fluxus network performance documentation (Griniuk, 2015) on the first Lithuanian festivals of happenings and actions, AN 88 (1988) and AN 89 (1989). While giving a conventional presentation on the stage using PowerPoint, I wore the EEG device, and my computer and sound recorder were situated approximately four metres away. I stated that I would be documenting the session for my research using sound recording and EEG data. The EEG device connection was perfect throughout the session. The audience seemed to pay no attention to the fact that I was documenting the presentation; any interactions they had with me were focused on the research that I had done my presentation on (note from my diary).

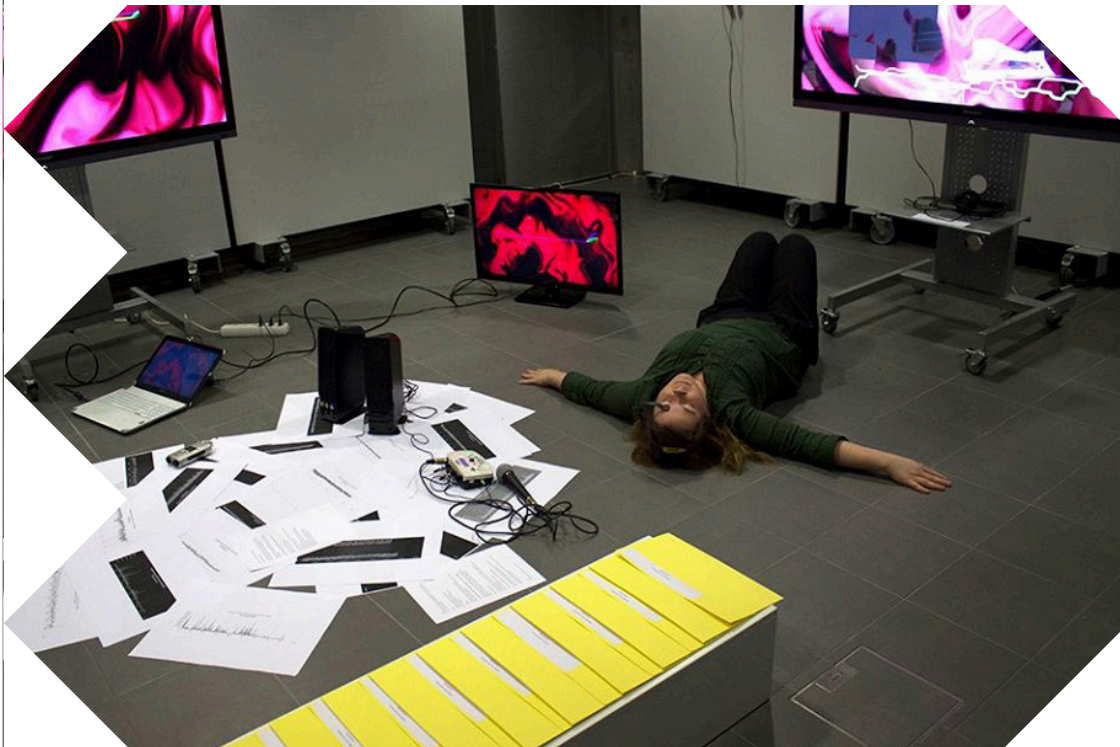


Image 4. Marija Griniuk. Case 3. Photo: Kaisa Vuolo.

Case 3: Rovaniemi, Finland (Gallery Kilo, 2020).

The third case comprises two performances that took place during an exhibition at the Gallery Kilo in Rovaniemi, Finland. Both were documented using an EEG device, and the viewer could observe the live recording process. These events were organised primarily to demonstrate how the software works in real time during a performance. Photo, video, and sound recordings were taken during these performances, along with EEG documentation. The EEG was positioned one to two meters away from the computer during each performance. During both performances, the EEG connection was fragmental.

The nature of text- and narrative-based performance art, which involves a facilitator and a participant, contains elements of improvisation (Bishop, 2012). The behavioural, visceral, and reflective design (Norman, 2004, pp. 65-96) of the four layers of documentation (photography, video, sound recording, and the live brain activity of a performing body) unveil the changes between the relaxed and focused states of the performer during these moments of spontaneity. In the first two cases, I succeeded in saving the attention and meditation data of the EEG device of the entire sessions. In case three, the documentation of the performance session is fragmented. During data analysis and data processing, it was possible to remediate the collected visual, sound, and EEG data into the video works, which contained images, sounds, and visualised and sonified EEG data.

Conclusion.

In this essay, I have presented three cases within my reflexive research on the documentation of performance using photography, videos, sound recordings, and data from live brain activity. Each case is part of my ongoing art-based research project on performance art documentation through biometric data from the performing body. All cases were presented in this reflexive research article, which aimed to investigate the process of documentation by recording visual images and the sounds of the performance art event setup while representing the inner states of the performer by recording the performer's live brain activity.

It is possible to record data during a live performance using an EEG device and to later remediate it into animated images and sounds. However, the EEG's connection during recording must be constant. Furthermore, the audience must be told the details of the process (what the performer will be doing, how the technology works, etc.) before the performance begins.

Documenting performances through EEG data provides a possibility to put the experiments conducted during **Mark Making** to practical use. For instance, they can be used for self-documenting performances (as in the present reflexive research), thus uncovering new documentation possibilities based on the conditions of physical and mental relaxation and the focused mental states of the performer.

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