

Artistic research as the collective production of knowledge

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Abstract: In the first part, Jonas Kellermeyer presents his concept of artistic research. He takes this to mean the collective production of knowledge in which members of civil society participate just as much as science and the art world. In the second part, this approach is adopted to examine a project about Ubiquitous Computing and thereby exemplarily explained.

Artistic research is a tricky undertaking. This is witnessed not least in the degree of controversy in the debate about the concept and meaning of artistic research (cf. Weberger 2017): artistic research does not consider itself bound to canonical methodology, nor does it wish to be perceived as not serious. Generally speaking, artistic research runs the risk either of marginalising itself or of exaggerating its own importance. The position I advocate sees it primarily as a means of *collectively producing knowledge*, a process in which members of society participate just as much as science and the discursive structures of science are acknowledged for their part, even if relative boundaries still remain. In the first part of the essay, this concept of artistic research is expounded in greater detail. In the process, it will be contextualised within prevailing discourse, with attention focused on common ground with as well as differences from other viewpoints.

In the second part, an exemplary examination of the art research project *Technology, Human, Design – Paradigms of Ubiquitous Computing* will be undertaken in order to lend a better understanding of the main points addressed above. The focus here lies on the concrete meaning and specific application of artistic methods, with particular reference to the topic of ubiquitous computing.

Artistic research

There are many definitions of artistic research, some of them contradictory. For the viewpoint voiced here to be integrated into discourse it is worth casting a look at the wider discursive structure. The definition of artistic research as provided in the following merely sets about mapping a particular perspective of a broad spectrum, but in doing so it elaborates on some of the definitions already available.

Art's capacity to lastingly shape our perception has already been established elsewhere (cf. among others, Hochberg 1977). Art thus has a share in the way cognition is constituted; it is an epistemologically valuable agent in its own right. It is not in the interest of artistic research to adopt traditional scientific vocabulary and corresponding procedures; that would be tantamount to an understatement of its potential. In my view, what singles out the methodological repertoire of artistic research is an *emancipatory* quality that allows it to tackle a subject meaningfully on the basis of a profane interest – indeed, by and large naively – and by doing so, to produce new forms of knowledge that expand the range of what can be said and thought. This description is already loosely related to the definition of artistic research as a genuinely “independent cognitive enterprise” (Tepe 2022, p. 15). However, in my view this is not about imputing a fundamental deficit to the disciplinary scientific establishment or even aspiring to compete with it in the same language. Rather, transformations need

to take place, independent criteria, as it were, need to be established that are capable of generating new perspectives onto epistemologically relevant content. For this, it is necessary for the art world and the academic establishment to enter into dialogue on equal terms. Accordingly, the “orientation of artistic research ‘towards scientific standards or application-driven research’” (ibid.) should be considered problematic. For conversely, this would suggest that art serves merely as a lever to further the already hegemonial status of natural science, thereby relinquishing its entire critical potential and accepting the status of simply standing in the shadow of classical research. This perspective amounts to a loss of the critical, playful and fundamentally disruptive potential which (more or less) openly comes to the fore in artistic practices. This critical quality should not be equated with overt negativity; rather, it offers alternative views of reality. Nevertheless, the position advocated here is not one that outrightly rejects “the strict orientation of artistic research to scientific standards”, but one that holds out the prospect of “effective cooperation” (ibid.: p. 16) between the various agents within the creative sector and those in the *classical* sciences.

In the end, it comes down to an informed redefinition of the standpoint from which scientific knowledge evolves and, by association, a redefinition of the basis of research: whether a subject is approached by means of scientific methodology or by following artistic strategies, the results of the respective processes should ideally be taken as mutually complementary.

A standard methodological work on artistic research states: “artistic research is characteristically not research about or of but a participatory act and reflection with a strong performative element” (Hannula et al. 2014: pp. 3 f.) – an observation that places explicit performativity in the foreground. This concerns not so much the concrete subject than the artistic procedure, which promotes both potential participation and mirrors the entire research context. The concept of *knowledge production* is central to artistic research – understood as “research by everyone and by everything” (Peters 2013: pp. 7 ff.) – and embraces not only science and art but also society as a whole. In her approach, Sybille Peters argues that artistic research is a concept under which different modes of research come together, and that “the question ‘What is research?’ [is] socially negotiable” (ibid.: p. 8).

Far from trivialisation of any kind, disciplinary research processes can be transmitted into aesthetic experiences within the framework of artistic strategy, so that the value and relevance of the respective research for the individually lived reality of social subjects are brought to the fore. It is a matter of distilling engaging qualities from a largely sober research process, so that disciplinary habits of seeing can be gradually prised open. The subjects being researched in the laboratories around the world – whether in physics, in the context of virological research or in relation to the technological cladding of our daily lives – all too often remain in a state of professional sobriety, which may be conducive to the seriousness of such endeavours but which proves to be more of an obstacle to the sustained involvement of the general public. *In order to evoke a sense of urgency in what the individual experiences we require (media-based) translation of scientific knowledge into a generally understandable language.* Commonly attributed to the field of communicating science, this function plays a crucial role in the conception of artistic research currently under discussion. Unlike the pure communication of science, however, the communication meant here is not merely post hoc: the *production of knowledge* itself is accomplished by nature of this process of concomitant communication. Accordingly, this is less about presenting a fait accompli to a receptive audience than, to a certain degree, about democratising the discourse surrounding research.

Therefore, artistic research is certainly not about fully displacing established sciences with populist verve, but, from time to time, critically questioning their general approach. Artistic research is an endeavour that in collaboration with the audience draws up new perspectives, that actively pursues the *generation of knowledge*. One example of such a transfer is evident in the work of the media art duo *semiconductor*. Referring to their work *Halo*, the two artists said the following:

“Scientists always tell us that these types of [particle] collisions [at CERN, J.K.] would likely to have occurred at the Big Bang, when there were the types of speeds necessary for particles to collide and emerge in this way. We like the idea that we are placing the viewer at the very beginning of the universe, a time that is impossible to imagine.” (Art Basel 2018)

Timothy Morton’s doctrine of hyperobjects too offers an interesting theory-driven point of departure in support of artistic research as an independent programme of mediation and cognition. These hyperobjects are “massively distributed entities that can be thought and computed, but not directly touched or seen” (Morton 2013b: p. 37), but which for all their evident unattainability have a massive impact on human existence. According to Levi Bryant, a long-time associate of Morton, hyperobjects are

“[...] like our experience of a pool while swimming. Everywhere we are submersed within the pool, everywhere the cool water caresses our body as we move through it, yet we are nonetheless independent of the water.” (Bryant 2010)

Climate change is a good example of a diffuse, *non-local* hyperobject (cf. Morton 2013a: p. 38). To engage in a hyperobjective state of affairs is first of all to recognise that one is oneself a participant in it. Connected with this is the ability to form subjective access to reality. Artistic research is a mediating agency insofar as its key preoccupation is always with reception. In this way, this to a certain degree offers a possibility of democratising the otherwise so hermetically insular part of scientific knowledge production. Not only is research made potentially accessible to *everyone* (which would represent the

communication of pure science) but people would also be involved *in* the actual production of knowledge.

The risk of any artistic research ultimately lies in producing “art without an audience” (Peters 2012: p. 11) by orienting itself too strongly towards scientific research and its corresponding habitus – and thereby losing sight of the general public as the third element alongside science and the art world. The anticipation of a changing perspective and the accompanying speculative *reframing* arising from pressing questions and processes with aesthetic means lies at the core of artistic research as we understand it here. This view is shaped above all by a normative (and mediating) approach: the assumption that research as pursued in laboratories and disciplinary-leaning projects has no (or only modest) appeal to a large section of the population can be changed by the experimental and playful character that artistic influence is capable of amplifying. In this manner, the social subject is permanently inscribed into the scientific establishment. Existential participation is in sight. Precisely with regard to the far-reaching social consequences that lie ahead as a result of the increasing migration of technological computing power to the margins of human perception, an artistic and speculative approach to research would appear to make sense, whereby that which is speculative can be identified primarily in its tendency to fictionalise scientific procedures.

Between affirmative behaviour and critical reflection – ubiquitous computing revisited

As already mentioned in the first section, the *reframing* of scientific knowledge with the aim of taking on board a broader public functions also and in particular with regard to research that deals with altogether commonplace, if not mundane, matters. *Smart* devices have become an integral part of everyday life for the vast majority of people. The *Internet of things* and *Industry 4.0* allude to a *re-enchantment* of the world (predicated on its previous *disenchantment* (cf. Hartmann 2005: pp. 276 f.) – where toasters communicate with refrigerators, cars with thermostats, mobile phones with lamps and autonomous production robots with their colleagues (which could be of either human or non-human nature). The use of digital (assistant) technology is to some extent so subliminal that the coupling required to take place occurs entirely without visible interfaces. In this, the frequently invoked *seamlessness*, i.e. the apparently seamless form of connectivity between individual devices – *as if by magic* – is both a blessing and a curse: on the one hand, things simply work without requiring any major know-how on the part of the individual; on the other, this also gives rise to an undefined feeling of impotence that can quickly overwhelm the individual in the face of technology. The artistic approach to research into the thematic complex of *ubicomp* is driven primarily by an attempt to address this issue in a playful, quasi-critical manner.

The term “ubicomp” is derived largely from the pioneering work of Mark Weiser at *XEROX PARC* in Silicon Valley in the early 1990s, and more specifically from his paper with the programmatic title *The Computer for the 21st Century* (Weiser 1991). Weiser addresses the contemporary dynamic of the disappearance of explicit computing power to the periphery of the individual’s sphere of perception: “The most profound technologies are those that disappear. They weave themselves into the fabric of everyday life until they are indistinguishable from it.” (ibid.: p. 94)

The decentralisation of computing power imagined by Weiser at that time (which is now largely reality) is one of those developments to have made a massive contribution to contemporary culture: as a factor of stability. Such computing processes remain infrastructural, as it were, thus becoming the basis on which, quasi-organically, a *new normality* is able to develop. The significance that the highly technologised and sensor-based creation of a supposedly holistic image of the human subject plays within the social context should not be underestimated. That the idea of ubiquitous computing and its influence on everyday life is not a truly novel concept is shown by many publications from the early 2000s:

“After the commercialisation of the Internet in the mid-1990s unleashed the to date most recent wave of legislative changes, the next technical revolution is already imminent: that of smart everyday objects and ubiquitous computers.” (Langheinrich 2005: p. 335)

In the current world of 2022, a glance within the (potentially networked) interior of an average household would suggest that we are already in the midst of this period of technological upheaval. Digital assistants and, associated with them, the algorithmic access to social realities, are well-nigh ubiquitous these days: *Alexa*, *Siri*, *Cortana*, *Bixby* – we are surrounded by many variations of these and similar technical and functional connections to social realities. With visionary grasp, Adam Greenfield (2006: p. 34) summarises this state of affairs under the term “everyware”:

“[E]veryware [...] isn’t so much a particular kind of hardware, philosophy or software design, or [a] set of interface conventions as it is a situation – a set of circumstances.”

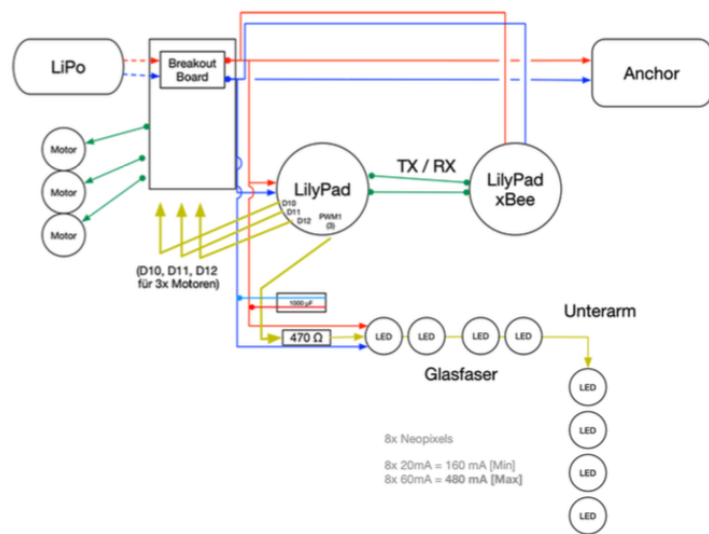
To achieve an adequate understanding of the essence of ubiquitous computing it would seem particularly promising to adopt an affirmative, analytical form of artistic research: this would allow us to challenge precisely those paradigms that guide the current actions and thinking of key social actors along certain paths and playfully put them to the test. For instance, the installation *Ubicombs* is a narrative instrument which through the playful incorporation of its participants can generate insights that, in slightly mitigated form, also tell us about the tendency towards the pervasive *datafication* of people in public space. Playfully and speculatively, *Ubicombs* examines certain assumptions about the quasi-infrastructural technologies of *Ubiquitous Computing* (UbiComp) that have been running for almost a decade and puts them to the proverbial test. At the core of conceptual art research, as envisaged by this project, lies the interplay of data-driven attempts to categorise users as well as their response to the extensive conclusions regarding their presumed personality structures, which are drawn uniquely from their behaviour within the installation.



Floor plan of the *UbiCombs* research facility and insights into the various rooms (2021).
Photos: Jan Torpus.

The installation (or research facility) consists of five interconnected hexagonal rooms that are capable of responding to the presence and respective behaviour of any individual by means of a number of sensors and corresponding technical elements which convert the input signals into novel output values. The design of these spaces is based both on a historical narrative and on the identification of five paradigmatic models of the current form of ubicomp. Together with a garment specially designed for the installation, the purpose is to focus on people's behaviour within responsive environments, i.e. spaces capable of reacting to their users as they pass through the installation. The data collected by the various sensors are jointly correlated and, while the participant moves through the installation, assembled to form a data-based image of the person.

The key issue here concerns the underlying motives of the behaviour shown in each case in relation to various dimensions: do the (test) participants show signs of a systematic, rational reading of the setting, or do their behavioural patterns suggest an intuitive form of sense-making? Do curiosity or boredom predominate? Do the signals indicate an easy-going, relaxed approach to new things, or does their behaviour reflect wariness? These questions are addressed on three parallel levels: 25 items are set up using pairs of antonyms such as *private/public*, *active/passive* or *included/excluded*, in an attempt to seek answers in three ways. Answers to these questions are approximated autonomously by the system of actuator/sensor devices on the basis of threshold values previously specified by the researchers; at the same time, a team member runs a real-time assessment of the individual's progress through the installation which is followed by a self-assessment by the respective (test) participant immediately after they've finished. How much do the different modes of observation diverge? Is it possible to approximate the underlying motivations by means of a technical, algorithm-based form of observation?



Sophie Kellner and Jennifer Keusgen: Garment with LilyPads and circuit diagram (2020).
Photo: Jan Torpus.

As playful and removed from everyday life as the installation with its quasi-caricatured spaces might appear, the occasionally provocative hypotheses postulated here are nonetheless relevant since they draw attention to the uninterrupted, subliminal objectification processes to which a human subject is exposed every day in the face of omnipresent sensor technology. Within the framework of artistic research it is possible to make exaggerations, to partially overstep ethical boundaries and to adopt a more provocative as well as speculative approach than would be possible within the context of classical scientific research. In this respect, a certain kind of affirmation takes effect that is frequently witnessed in the context of commercial developments: nowadays, the big tech companies in Silicon Valley, for example, test their products (and services) increasingly in similarly playful settings (cf. among others, Gangadharbatla and Davis 2016; Dey and Eden 2016). Artistic strategies always adopt a critical view of such explicitly commercial ventures within the tech sector: their goal is precisely not the marketability of a specific device or service, but rather the successive exposure (and, concomitantly, also criticism) of algorithmic agency and the attendant repercussions. “The existing infrastructure is not a capitalist stage to be smashed” (Srnicsek and Williams 2013: p. 30), but lends itself as a material basis for far-reaching speculation. It is in this sense that we should understand the importance of ubiquitous computing: for, “[t]o further this, we must develop both a cognitive map of the existing system and a speculative image of the future economic system” (ibid.: p. 31). At the same time, it also requires a consistent vision of meaningful techno-social interaction. “If the open system is determined by anything, it is determined by the goal of STAYING THE SAME.” (Plant 2000: p. 162) The context known as ubicomp is thus a structurally conservative endeavour concerned primarily with creating stable structures and simplifying standardisation (cf. among others, Dourish and Mainwaring 2012). The installation *Ubicombs* seeks to lay bare a rebellious quality from surveillance technology. To this end, the speculative approach of artistic research, as presented here, is extremely well qualified.

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