xCoAx 2019 Conference on Computation, Communication, Aesthetics & X Milan, Italy

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Data (self) Portraits: an Approach to the Visualization of Personal Data from an Autoethnographic Perspective

Keywords
data portraits
portrait
personal data
autoethnography
visualization
computation

This study aims to explore the creative possibilities associated with the concept of data portrait as a means of representing and expressing identity. To this end, it begins by discussing the concept, its emergence, and the functions of data portraits. It then examines its concrete manifestations by analyzing a set of aesthetic artifacts that are, implicitly or explicitly, tied to the notion of data portrait through different creative approaches. This analysis informs the design and development of a *Data Self-Portrait,* aiming to explore visualization methods for producing a portrait, generated from personal data collected through an autoethnographic approach. In this manner, this study seeks to highlight how personal data become relevant in portraying identity. It seeks to contribute to a discussion about the ways of conceptualizing portraiture, informed by the current proliferation of digital data and the creative possibilities offered by computational media for exploring the portrait as a representation genre.

1 INTRODUCTION

The portrait as a symbolic representation of individual identity tends to reflect the social, cultural and technical contexts in which it is created. In the current moment characterized by omnipresent technological mediation, data portraits appear as forms of portraiture that propose to evocatively represent the identity of individuals, being based on personal data generated as a by-product of daily activities and registered by technological devices of everyday use. These data sets function as a kind of fingerprint, unique to each individual and, given this expressive potential, are used as raw material for the construction of portraits.

The notion of data portrait then emerges as an outcome of creative practices that explore the concept of identity by using visualization methods to value and give an expression to personal data, as an index of the real and as a record of personal experiences.

This study seeks to explore the creative possibilities associated to this notion as means of representation and exploration of individual identity. To this end, it combines a theoretical, analytical and projectual approach, proceeding to a discussion of the concept of data portrait that guides the selection and analysis of a set of works, from which we extract guidelines for the design of a *Data Self-Portrait*, as a reflection and expression of one's own identity. In this manner, it also suggests how portraiture can be conceptualized, as is informed by the current context of proliferation of digital data through computational means.

2 DATA PORTRAITS

The notion of data portrait refers to forms of portraiture that evocatively represent the identity of an individual based on accumulated personal data. According to Donath (2017, 187), data portraits are "depictions of people made by visualizing data by and about them". So these portraits do not represent faces. Their visuality is the product of the quantification and representation of data produced in the course of daily experiences and registered by technologies of personal use.

These portraits take advantage of our contemporary mode of online information consumption and socialization, and of the vast amounts of data that are generated in this process and that constitute our digital footprint, be it data resulting from common daily activities, such as online searches, geo-location, or arising from various interactions with technological devices that collect biometric or environmental data. However, this is not always the result of a deliberate action, but rather a consequence of our daily routine, given that data about us are produced, whether we are aware of it or not. These registers extend in time, reaching the past, and mapping the evolution of our identity to the present, as potential biographical repositories.

Therefore, central to the design of data portraits is the subjective decision of which data to choose and what to show, so that the portrait becomes a relevant representation of the individual in the contexts in which

it is produced and circulates. Accordingly, the visuality of these portraits is no longer the result "of the form of a phenomenal world, with its faces, its landscapes, its events", but rather "of the elemental multiplicity constituent of a nebula of data that a screen interface will distribute and will organize in matrices of luminous points under a purely conventional legislation of discursive organization" (Renaud 2003).

2.1 How data portraits emerge

The first notable experiences around data portraits emerged in the late 1990s, associated to the need of creating representations of participants in online discussions. Within these groups, profile pictures are of limited value since the most relevant information about the users relates not to their appearance but to their actions within the group itself. Responding to this, visualizations were created as a means to map each user's activity and to help group members make sense of each other (Donath 2017, 198).

The *PeopleGarden* project (1999) was one of the first data portraits developed by Rebecca Xiong and Judith Donath, at the Sociable Media Group of the MIT Media Lab. Chosen for its "simplicity and intuitiveness" the garden metaphor was used to represent participants in an online discussion forum, wherein organic forms, similar to flowers, conveyed how the users behavior can change over time, as a "simple object that can easily deal with a changing number of components" (Xiong and Donath 1999).[1]

In this manner, these data portraits represent a cultural and ideological shift concerning the representation of identity, with direct implications on portraiture as a representation genre. While depictions of faces can convey relevant social information, such as age, gender, ethnicity, these portraits prioritize the representation of "qualities that are not directly observable", relating to actions, behaviors and ideas, as socially relevant information that cannot be directly deduced from appearance (Donath 2001). Thus appearance loses its value and significance to the expressive potential of data as a raw material for portraiture.

1. The height of each 'flower' refers to the period of the person's relationship to the group, the number of 'petals' indicates their number of contributions and the color expresses how recent are their interactions with the group. As the authors explain, "We wanted a simple object that can easily deal with a changing number of components. We also like the organic nature of a flower, and the suggestion that it changes over time, as users do. (...) We have used the garden metaphor because a healthy garden has certain properties that we can use to represent a healthy discussion group. For example, a garden with more bright flowers indicates a discussion group with more new posts" (Xiong and Donath 1999).

2.2 Functions of data portraits

Although different from traditional portraits, data portraits evoke functions of their classic counterparts as essentially tied to the representation of the subject before the other and/or before himself. On one hand, they can fulfill a 'proxy' function by representing individuals in online communities, revealing their behavioral patterns to the communities and having an impact on how others act towards them. On another hand, data portraits can act as a "data mirror, a portrait designed to be seen only by the subject, as a tool for self-understanding" (Donath et al. 2014). As a vehicle for the self-exploration of identity, the portrait becomes a 'data mirror' or a self-portrait reflecting patterns of behavior.

Data portraits can also fulfill a political role by drawing attention to the loss of privacy and control over one's private information. As digital sur-

veillance becomes increasingly ubiquitous, they also entail the re-appropriation of personal data dispersed in the Big Data domain, by returning them to the private and domestic sphere of the small data universe. Such is the case with Jason Salavon's *Spigot* (*Babbling Self-Portrait*) (2010), as a mapping of the history of his personal searches, which Google kept on file.

Finally, and according to Lupton (2016), data portraits can also promote an affective tie with one's personal data, as an effect of their instantiation. When represented, data acquire a symbolic value that can generate feelings of belonging associated to the notion of identity. They can have a similar effect as photographs exhibited in a house, acquiring biographical and therefore sentimental value, tied to their documentary nature and to their role of replacing that which is absent, thus being regarded as crystallizations of moments, of past experiences.

2.3 From portraits to data portraits

We can define data portraits as forms of portraiture, or artistic constructions, that represent the identity of the subject portrayed and that commonly resort to autoethnographic methods for collecting relevant data, which is quantified and given expression by means of visualization techniques. In this process, computation can play a role in automatizing the mapping process, or in assigning dynamic properties to the visualization. The resulting artifacts can be considered as an outcome of an interdisciplinary practice, when taking into account the different concepts and approaches involved.

The portrait

Accompanying technological and cultural advances the portrait has been gradually reinvented following the tendency to detach itself from the mimetic representation of the physical body and moving towards abstraction. For example, *Portrait of Deb from 1988-199?* (2012-2013) by L. J. Roberts, seeking to defy strict binary conceptions of gender and approaching their impact on identity, was conceived from a series of embroidered emblems collected by Deb. As a form of physical data portrait, the work is based on the notion that material objects express meaning, and employs enumeration techniques and personal inventory as a form of portraiture.

This use of enumeration techniques and personal inventory allows the same kind of exploration of identity that characterizes the conventional portrait, however shifting "attention from iconic qualities of portraiture to indexical ones" (West 2004, 212). It thus provides a conceptual ground for the emergence of new forms of portraiture where autoethnography plays a role.

Autoethnography

The autoethnographic approach can be characterized by an hyper-observation of daily life, through data collection and documentation; a basis for producing aesthetic artifacts by means of self-observation.[2] These artifacts

2. For example, Sophie Calle can be regarded as a "self-styled ethnographer of the everyday" who uses ethnographic techniques to make art "out of her own and other's lives," based on "processes of hyper-detailed observation and data gathering, using complex strategies of surveillance, reportage and documentation" (Morely 2007, 100).

then propose a reflection on the identity and daily life of the subject by using documentation processes and appropriating techniques from the scientific disciplines, such as exhaustive observation, data collection, quantification and inventory (Morley 2007, 100).

Considering that routine is so embedded in our day-to-day life that we tend not to pay any attention to it, Morley (2007, 96-97) argues that the question "is not to discover the new, the grandiose, the striking, the exceptional or the unexpected, but rather to (re)discover or perhaps see well for the first time, the realm of that which is already familiar and, thus, largely unseen"; in other words, to pay attention to "what is truly daily in our daily lives" such as the banal events that constitute almost the whole of our existence.

Following a process of "reflexive self-observation", the autoethnographic approach highlights the use of personal experience to generate knowledge, not only about the self, but also about culture (Bochner and Ellis 2016). This idea conforms to Perec's suggestion that "What's needed perhaps is finally to found our own anthropology, one that will speak about us, will look in ourselves for what for so long we've been pillaging from others. (...) Not the exotic anymore, but the 'endotic'" (Perec 1999, 210).

Data

These processes of self-observation are based on capturing facts and occurrences by collecting data, which can be understood as a "set of measurements extracted from the flux of the real" (Whitelaw 2008). However, ontologically, data can be seen as an abstraction that only becomes meaningful when organized and contextualized in order to convey information.[3] As such, data is a "broad term that refers to collections of values that help us understand a phenomenon more deeply" (Freeman et al. 2016).

When we talk about personal data we are commonly referring to any information relating, directly or indirectly, to an identified or identifiable individual, be it by reference to a name, identification number, biometric data, fingerprints, DNA, or other factors specific to their physical, physiological, mental, economic, cultural or social identity.[4] So the notion of personal data can include a diversity of measurements collected through autoethnographic methodologies, which are tied to aspects of the everyday life of individuals, pertaining to physical or physiological realms.[5]

The current trend toward quantifying all aspects of one's daily life is also enhanced by the growing ubiquity of self-tracking technologies. An expression of this trend is the *Quantified Self* movement,[6] which takes advantage of the possibility of digitally recording personal experiences, by automatic or semi-automatic means, and archiving these highly individualized data sets that can function as biographical repositories, whose analysis would possibly contribute to optimize our potential as human beings.

In this sense, personal data always emanate from the concrete world and, therefore, shouldn't be regarded as complete abstractions because they arise from material aspects and physical actions that reflect people, with their idiosyncrasies and subjectivities. Data portraits thus challenge

3. As Whitelaw (2008) explains, "In themselves, such measurements are abstract, blank, meaningless. Only when organised and contextualised by an observer does this data yield information, a message or meaning."

4. According to the *General Data Protection Regulation* (EU Publications 2016).

5. Namely, personal data can be relative to an individual's actions (communications, activity in social networks), consumption habits (food, quality of surrounding air), mental states (moods, excitement) and performance (heart rate, oxygen levels in the blood).

6. The term Quantified Self (QS) "embodies self-knowledge through self-tracking" referring to a number of aspects we can measure about ourselves such as, "our heart rate, respiration, hours slept, or even the number of sneezes and coughs during a day. However, not all important things in life can be measured and not everything that can be measured is important. QS really revolves around finding personal meaning in your personal data" (Quantified Self Institute 2016).

the impersonality of data as an abstraction, revealing how data can be recovered from the Big Data realm and brought back to the personal sphere; how it can be used to create visual narratives that are able "to connect numbers to what they stand for: knowledge, behaviors, people" (Lupi and Posavec 2016).

Visualization

These forms of portraiture however tend towards visual abstraction, as a means of visualizing subjectivity and as visualizations of a subjective nature. The mapping of abstract quantifications (of a subject's traits and activities) into visual representations enables the creation of form from that which is formless, in order to make it perceptible, intelligible and interpretable.[7] So visualization is often about "rendering the phenomena that are beyond the scale of human senses into something that is within our reach, something visible and tangible" (Manovich 2002).[8] Therefore, subjectivity is also inherent to the choices involved in the mapping process. In this sense, and as suggested by Manovich (2002), "data visualization artists should also not forget that art has the unique license to portray human subjectivity."

This high degree of subjectivity can nevertheless be coupled with a notion of Realism. In particular, we can invoke what Min (2015) refers to as 'digital realism', considering that "Digital data is, to a certain extent, pure. At a surface level, there is no fantasy or illusion in the data world" (Min 2015). The role of visualization would therefore be to allow a direct access to 'reality' through a visual rendering of data extracted from the 'real' world. The image is the result of the conversion of data into a symbolic system; it arises from the discursive organization of the data according to a code. As such, it can be considered a direct result of the data and therefore hyper-realistic.

The role of computation

When considering computationally produced images, Renaud (2003) designates them as "informational images" since their form is a direct result of the conversion of data (numerical quantities) into something "sensible" or "visible". But its "numerical" (digital) nature also constitutes an "operative informational visibility" potentially endowing it with new functionalities. The creation of these visualizations then relies on computation to enable the translation of data into static or dynamic images, as different instances of a class of images resulting from algorithmic processes. As Antonelli (1999, 11) points out, the instructions or algorithms reveal a "programming method that transforms itself into a visual design process", and this can also involve endowing the image with dynamic features or enabling the interactive exploration of visual representations of data.

3 ANALYSIS

In order to understand the diversity of creative approaches to the concept of data portrait, we analyze a set of projects that are implicitly or explicitly tied

7. The process of deriving information from a given data set, as described by Fry (2008, p. 5), implies the obtention of that data (*acquire*), structuring them (*parse*), the usage of methods of quantitative analysis such as statistics (*mine*), its representation according to a visual model (*represent*), the refinement of the same representation in order to make it clear and visually appealing (*refine*) and, finally, the integration of interactive features that allow viewers to select data and control how it is displayed (*interact*).

8. Complementing this idea, Manovich (2002) states "data visualization art is concerned with the anti-sublime. If Romantic artists thought of certain phenomena and effects as un-representable, as something which goes beyond the limits of human senses and reason, data visualization artists aim at precisely the opposite: to map such phenomena into a representation whose scale is comparable to the scales of human perception and cognition."

to this notion, in the light of the previous definition. We selected works that use personal data as raw material, employ quantification processes, assign a visual expression to the data and address issues related to identity. The diversity of data used, the mapping processes employed, the multiplicity of modes of expression and representation, as well as the variety of media, were also valued in order to understand the diverse manifestations of data portraits.

The selection of works is listed chronologically:

1. *DNA Portraits,* DNA11, 2005;
2. *Spigot (Babbling Self-Portrait),* Jason Salavon, 2010;
3. *201 Days,* Katie Lewis, 2010;
4. *TimeMachine,* CADA, 2012;
5. *Mood Maps,* Erin Hedrington, 2013-2014;
6. *Heart Bot,* Odd Division & Tool of North America, 2014;
7. *Data As Object,* Brendan Dawes, 2014;
8. *The Art of the Thrill,* Sosolimited, 2014;
9. *Walking,* Laurie Frick, 2012-2015;
10. *Data Portraits,* Kristin McIver, 2015;
11. *Dear Data,* Giorgia Lupi & Stefanie Posavec, 2015;
12. *The Sixth Sense,* Clever Franke, 2016;
13. *Poisonous Antidote,* Mark Farid, 2016;
14. *HeART of Travel,* Joshua Davis, 2017;
15. *Halo,* Peter Crnokrak/ ORA, 2017;
16. *The Art of Feeling,* Random Quark, 2017;
17. *Floating Map/ Latitude and Longitude Project,* Stephen Cartwright, 1999 - in progress.

3.1 Model of analysis

In order to highlight what features these works share and how they diverge, the analysis follows the dimensions proposed by Ribas (2014) concerning digital computational systems as aesthetic artifacts,[9] while incorporating the subcategories that Lee (2014) defines around this model, considering *concept* (theme and content), *mechanics* (data and mapping processes) and the elements of *experience* (surface and dynamics).

9. Its focus on the creative use of data and processes is defined on the basis of the MDA framework (Hunicke 2004) and the model for digital media proposed by Wardrip-Fruin (2009) and the focus on processes defined by Dorin et al. (2012).

We also took into account how Donath et al. (2014) and Lupton (2016) define the functions of data portraits (perception of patterns in personal data, aggregation of scattered digital data, exploration of the affective dimension of data and representation of the individual within a community). We also resorted to the taxonomy by Freeman et al. (2016) regarding data as raw material for the production of aesthetic artifacts, and Kitchin and Lauriault (2014) differentiation between Big Data and small data. Additionally, we considered how Whitehead (2005) discusses the ethnographic value of the various types of data, while Selke (2016) distinguishes between passive and active, deliberate and non-deliberate methods in data collection.

On a conceptual level, we analyze the theme and functions of the data portrait, considering the type of personal data used, its source, degree of privacy, scale and autoethnographic value. At the level of mechanics, we

examined data (collection methods, the time of data collection and data-set assembling) and mapping processes (from input methods to mapping process and reference systems used to graph the data). Concerning experience, in terms of surface we focused on output media, modalities of expression, abstraction to the referent, legibility of information and the role of color. The dynamics concerns the type of results, overall behavior of the output and the level of interactivity.

3.2 Observations

Theme and content

Many of the works analyzed highlight the *perception of patterns* in data arising from personal data, often associated with an exploration of the *affective dimension of data*, by using personal data relating to the subject's actions or *biometric* data. The political dimension of *aggregation of personal data,* relating to its re-appropriation by the subject, is also at stake, as is the case of *Spigot (Babbling Self-portrait)* or *Poisonous Antidote*.

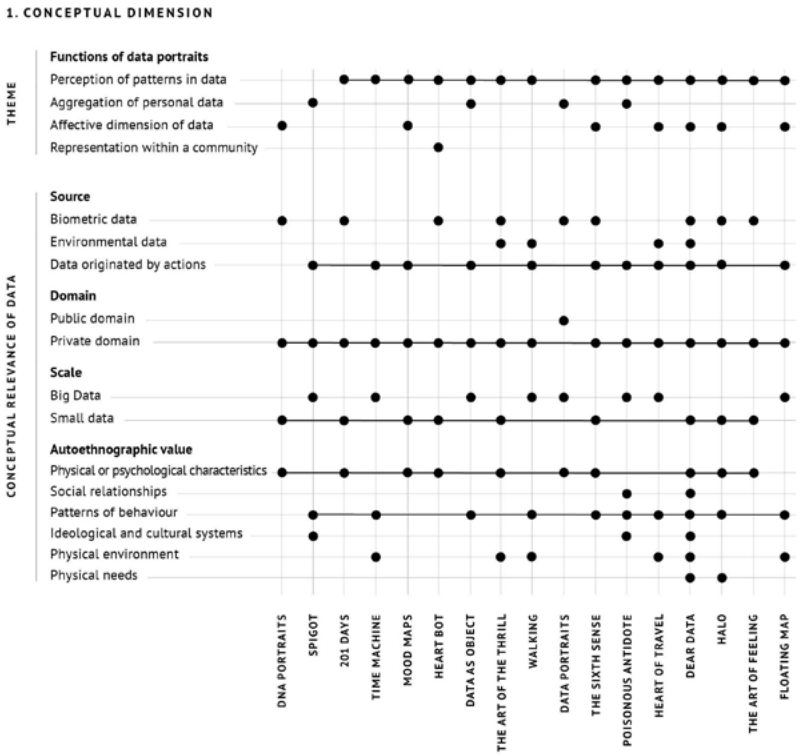


Fig. 1.
Comparative analysis of the conceptual dimension of the works.

The kind of data used pertains to *data originated* by actions, *biometric data*, and *environmental data*. However, while some projects privilege only one type of data, others correlate various types in order to address different aspects of the experience and identity of the subject portrayed.

All projects use data from the *private domain*, however, some extract it from the Big Data domain. So most of the projects reveal *patterns of behavior*,

and some favor *biometric* data in order to infer psychological characteristics. Almost all data portraits (except 3) represent the individual through their habits and *activities*, as opposed to classic portraiture based on appearance.

Data and mapping processes

Almost all projects resort to passive methods of data collection, both in a *deliberate* or *non-deliberate* way, through sensors as well as self-tracking applications or even those which are not meant for self-tracking. In such a way, the latter seeks to tackle into questions about privacy through the appropriation of personal data. While in some projects the data *assembly process* is manual (data is inputted a priori, or gradually in chunks), only a few assemble data in real-time, having both data input and assembly processes automatically executed.

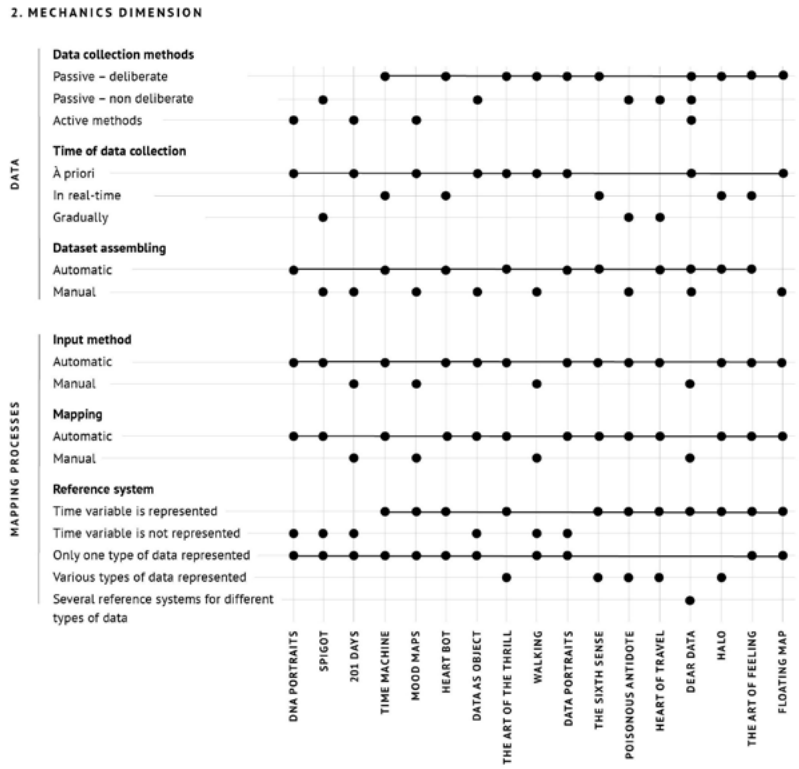


Fig. 2.
Comparative analysis of the works' mechanics.

The relevance of the temporal dimension is highlighted through mapping processes where the *time variable is represented*, mostly in order to express the variable nature of human experience. Only projects with a physical output involve manual mapping processes, being that all others resort to pre-programmed mappings that are automatically executed by a computational device.

Surface and dynamics

Although digitally produced, most data portraits have a *physical output,* be it *a static ima*ge or a three-dimen*sional* object and, although less frequent,

some present these physical outputs in installation or performance formats. Dynamic outputs are less frequent, as in *TimeMachine*, *Halo* and *HeART of Travel*, where the visualization can be interactively explored. Therefore, in terms of modes of expression, all projects privilege the visual modality (only twice complemented with sound), as well as a certain level of abstraction to the referent, although promoting the legibility of information through comparison.

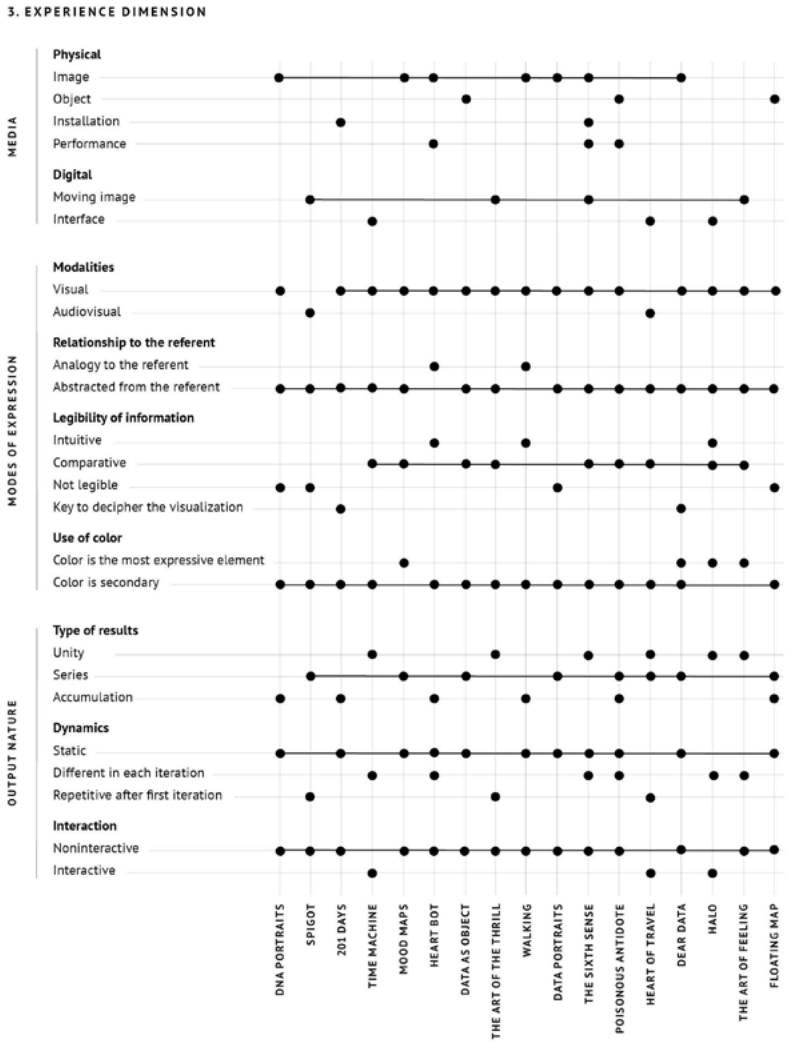


Fig. 3.
Comparative analysis of the experience dimension.

3.3 Interpretation

Regarding the conceptual dimension, we can observe how the choice of data relates to the portrait's intent. Most of the data portraits examined seek to reveal patterns of behavior arising from personal data, often associated to the subject's psychological traits. To this end, these portraits resort to data arising from the subject's actions or biometric data. Conversely, when the portrait's source data are related to the subject's surroundings, or environment, the aim is often to highlight how it influences each subject's behavior (this is especially relevant in projects such as *the Art of the Trill*).

The choice of data and mapping processes are closely linked to the project's aim, most notably when involving the aggregation of personal data, and the use of passive methods of data collection. The *perception of patterns emerging* from daily actions is emphasized, according to an autoethnographic approach that involves systematic data collection in an often passive and non-deliberate way.

Similarly, the features of the output are also closely tied to the data collection and assembly processes, whether manual or automated. As noted, the time variable is often represented in the reference system, regardless of whether data collection is done *a priori,* gradually or in real-time. So in order to express time, many of these data portraits consist of a *series or sequence* of visualizations that allows comparison between patterns emerging from the data or, in turn, resort to a sequential representation of time.

Another salient aspect is the expressiveness, and often abstract nature, of the visual outcome, thus distanced from an analytical stance concerned with legibility. Although part of the portraiture process, the analytical view is not reflected in the surface that often favors a subjective expression and the promotion of contemplation over exploration through interaction.

4 PROJECT: DATA SELF-PORTRAIT

Complementing the previous discussion and analysis of data portraits the project *Data Self-Portrait* creatively explores this notion through the development of a self-portrait generated from personal data resulting from everyday activities, following an autoethnographic approach. Therefore, it is important to consider which data "highlights the most salient features for evoking the individual" (Donath 2014, 215).

The project can be described according to three of the functions of data portraits previously addressed: a) observation of daily life through the emergence of patterns from the collected data; b) aggregation of personal data dispersed in software applications of daily use; c) exploration of the affective properties inherent to this data as indexes of personal experiences.

It was developed in two stages, the first being dedicated to the selection and collection of data and the later to the design and implementation of the visualization system that defines the visual outcomes giving expression and meaning to the data.

4.1 Data

We began by defining which data could have ethnographic value and what kinds of data would cover different areas of personal experience. Informed by the previous discussion, we selected data from three distinct domains: biometric, environmental, and data related to daily actions. Within each domain we were able to collect two types of data, namely: biometric data obtained from heart rate (in BpM) and energy spent (in kilojoules Kj) suggesting lived activities; environmental data regarding ambient noise (measured in dB) and temperature (in Celsius C°) as indicative of

agitation or tranquility, potentially influencing the individual's mood; and finally, through geo-location, we measured distances traveled in relation to home as a reference point (in Km), as well as the number of web searches performed daily, as pertaining to specific activities regarding personal habits and interests.

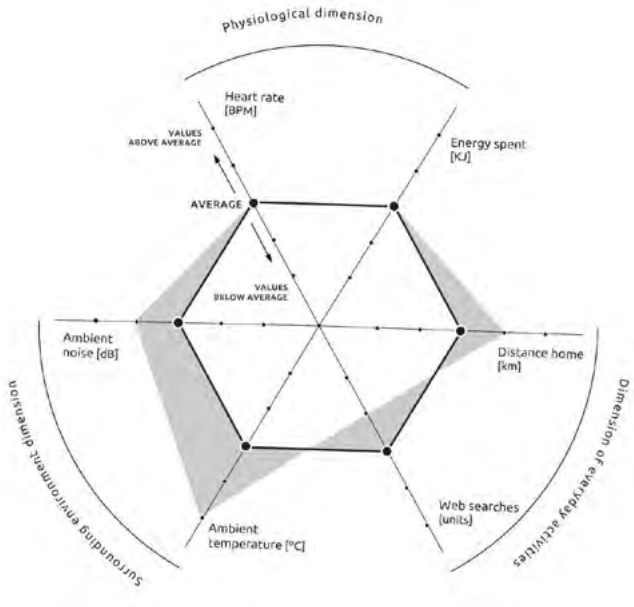
It was important that the data collection process could be automatic in order to render the self-observation process more fluid, involving no direct intervention of the subject. Therefore, the data were recorded through sensors embedded in devices of daily use, such as our mobile phone, cardio bracelet, and self-tracking applications as well as records from web browsers.

4.2 Mapping process

Similarly, it was important to facilitate the mapping process by means of automatic execution, according to the idea of having an "intermediary mechanical artist" perform that mapping, so that the "representation of the subject's identity is controlled now by the program" (Dragulescu 2009).[10] To this end, we developed a program in order to generate the visualizations, comprising static image and a dynamic output that could be interactively explored.[11]

In this manner, the *Data Self-Portrait* is designed to represent everyday life from personal data by comparing the arithmetic average of the total values collected with the values of current measurements (displayed by the system at the time it is viewed). By comparing data of the present moment with the total average of collected data, the system highlights the variations in daily routine, revealing patterns that emerge from the subject's daily life.

Visualization resorting to a polar coordinate system



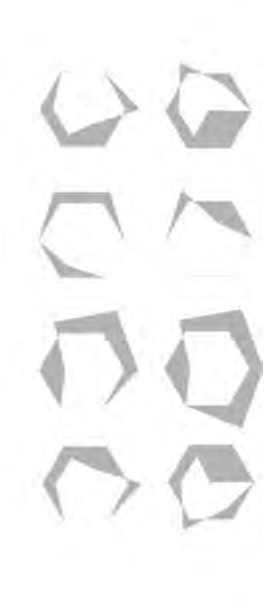


Fig. 4.
Mapping system based on polar coordinates

10. As Dragulescu explains, "The actual data portrait is rendered by the intermediary mechanical artist, a program or a collection of programs that materialize the will of the artist/programmer. The mechanical artist blurs the lines between art material, art instrument, art experience and art object. (...). The software is one part material: the electronic canvas is the support on which the portrait manifests itself, and the interface is an integral, "tangible" component of the data portrait that allows for exploration; and one part instrument: it contains the code that collects and generates the final art object/experience" (Dragulescu, 2009).

11. The implementation of the visualization system implies the programming of an algorithmic process that systematizes the transcription of numerical data into a visual format. To operate this transition we chose the P5.js library for being browser-based (thus cross-platform) and open-source.

To visualize data we resorted to a radar chart where the daily average values are represented by the contour line of a regular polygon and where each type of data defines one of its vertices. The comparison between the average and the current time values that the system is reading is established by drawing a concentric irregular polygon whose vertices change according to the input data. So, below the average values are represented on the inside of the regular polygon and the data above the average values on the outside.

Visualization in a timeline

The output is essentially contemplative, in alignment with classic portraits. However, we found it appropriate to allow exploration of the portrait through interaction, since it condenses large amounts of information. The user can thus request information to the system and access data related to a specific period of time, through a timeline that serves as a navigation system.

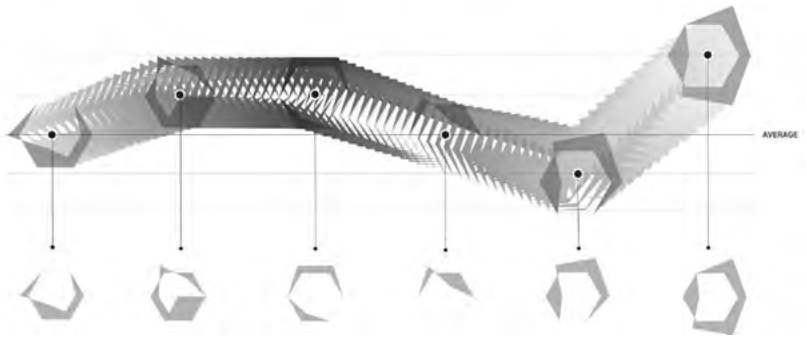


Fig. 5.
Mapping system based on a timeline.

Color plays an important role in this visualization because it expresses the comparison of each measurement to the average values, enabling us to see the variations to routine at a glance. The system checks the value of each of the six types of data collected, above or below average, and this variation is expressed on a scale of seven values (from 3 to minus 3).

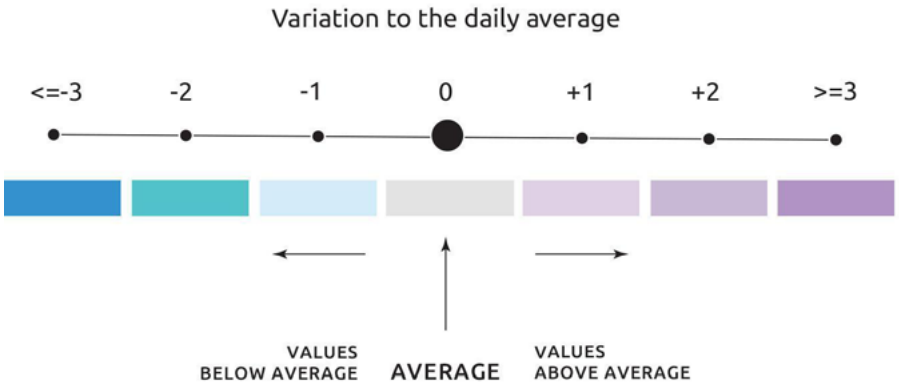


Fig. 6.
Color attribution.

4.3 Results

As shown above, the project explored different forms of visualization arising from the same dataset as complementary expressions of the data-self portrait. As part of an ongoing work, we are exploring these different results in the form of a physical object, a dynamic visualization, a printed publication[12] and a website that presents the project.[13]

The choice of a physical output seeks to evoke aspects of traditional portraiture, in the sense of a crystallization of a moment in time that is materialized for future contemplation. In turn, the dynamic visualization goes beyond this crystallization, revealing how human experience unfolds in time, as an evolving self-portrait. The aim of the printed publication is also to contextualize the development of the *Data Self-Portrait*, including the various visualization processes involved in its production, and the website serves the gradual aggregation of all elements of the project, having as its main content the dynamic visualization that can be interactively explored.

12. http://dataselfportrait.catarinasampaio.com/pub.pdf

13. http://dataselfportrait.catarinasampaio.com/

Fig. 7.
Screenshots of the dynamic visualization.

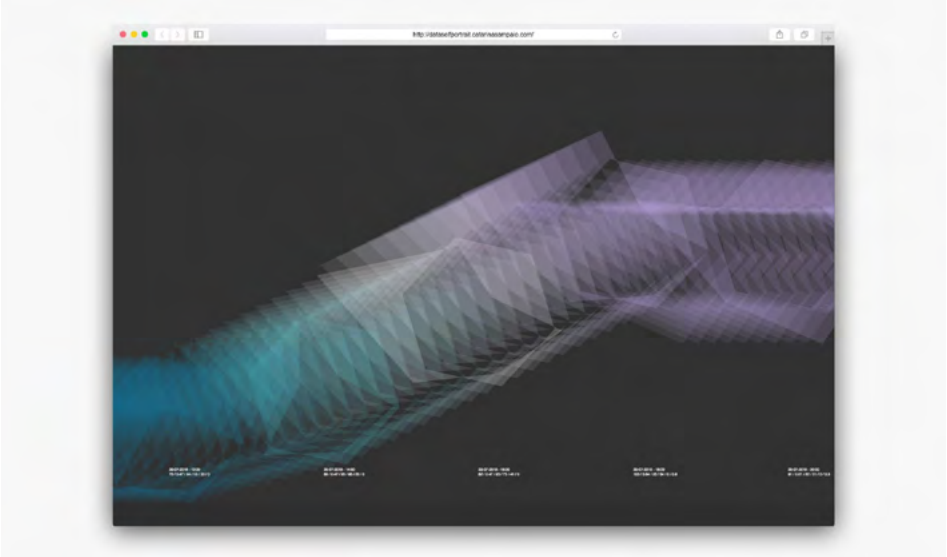


Fig. 8.
Screenshot of the timeline.

5 CONCLUSION

This study addressed the concept of data portrait and the creative manifestations and possibilities inherent to this form of portraiture. This approach was motivated by the belief that this kind of representation and

exploration of individual identity becomes increasingly relevant as a reflection of our contemporary mode of living immersed in data.

Following this idea, the project *Data Self-Portrait* was developed in order to explore the creation of primarily abstract visual representations of human identity generated from personal data, with the aim of exploring the creative possibilities inherent to data portraits and their different instantiations. Although the data portraits we analyzed and conceived tend towards abstraction, by being based on a quantitative approach and often algorithmically generated, they have the ability to evoke the individuality of a human being in ways that are not accessible to traditional portrait forms. In particular, by mapping human experience over time, these portraits express the fluid nature of identity, at a time when the continuous flows of information we generate and are exposed to, potentially change our perception of reality and of ourselves.

This approach also seeks to suggest how data portraits contribute to a reconceptualization of the portrait and of its inherent values, and how portraiture can become more attuned with our current selves, while taking into account our (currently inevitable) digital and online selves.

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