JUNIOR TRACK 03
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Humanizing Dance

Dataset / Dance / Dataviz

“Humanizing Dance” is the master’s degree thesis project in Design Multimedia and Visual Communication attended at La Sapienza, University of Roma. Lead by the Professor Vincenzo Cristallo, the project is based on a dynamic and interdisciplinary dialogue between Information Design and Dance. Moreover, the data visualization is the way to analyze a choreographic performance. Both need to open their fields of applications: Visual data need to encourage a new kind of data set (Ciuccarelli, 2014), but also dance needs to test new ways to reach a wide audience.

First of all, the project explores the Human side of dance. The movement is just its visible feature. Of course, it is fundamental, but there are a lot of invisible features that catch our eyes although we do not realize it. The experiments of Merce Cunningham analyze the movement of dancers through specific software. Due to this method he was capable of manipulating the data themselves which subsequently became the starting point for the creation of his choreographies (Cunningham, 1998). In this scientific approach, what is missing is visualization, beyond the visible, which allows to reveal other elements that make us understand the complexity that lies behind a choreographic sequence.

There are a lot of stories about the Information design and one of them is to focus on small data (Lupi, 2017) which, as well as big data, can provide us important information on a particular research topic. With this assumption, data visualization meets emerging dance. The project begins with the analysis of the choreography "Stretching One's Arms Again" by Lucrezia Gabrieli with Lucrezia Gabrieli and Sofia Magnani as dancers. The research process has been developed through four phases: choreography analysis, data sampling, data analysis and data visualization. First of all, the performance analyzed is divided into five main moments: the

presentation of the characters, the exploration of the space, the relationship, the consolidation and the awareness of the others. On the other hand, the second phase is a moment of data collection and definition of the data set. It starts with an experimental workshop between dancers and designer: white sheets are spread on the ground and it becomes the stage for the dancers. They perform the choreography on the sheets and the data collection begins during their stasis. The data collection, made by hand, includes: the direction of the eyes and the direction of the body, which often are not the same and for this reason provide further information. Furthermore, significant metadata (emotions, words, etc...) were added to each point. It is an empirical, physical and analogical activity. In the third phase of the project the whole experience is transferred into digital. A new graphic language is laid out and it starts from the study of notational systems developed in the past. For instance, the “Labanotation” in the early 1900s or the "Beauchamp-Feuillet notation", developed in the early 1700s (Hutchinson, 2011). The project of the new alphabet opens doors to the last phase: the five sections of the choreography are visualized with five infographics. In each of them there are all the data set collected: the direction of the observation, the direction of the body and all the annotations.

The ability of the Information Design is to reveal the invisible and tell about other relationships that do not immediately come to light. In fact, in the infographics, the relationship between the dancers is clearly visible. These data were not intentionally sampled, but these connections revealed by the infographics tell us something new about the choreography. And therefore, there is a second level of reading: the relationships between the characters, the relationships with space and their changes over time guide. In this way they reach a deeper understanding. The choreography, therefore, is finally translated into an image, through the language of Information Design. This operation reveals something more than a choreographic action, and this is the reason why the graphic display could also support a live performance. The initial goal of the project was to study a methodology to understand the complexity of dance and all the other elements beyond movements. On the other hand, the visualization process could also be a useful tool for dancers and choreographers who need to analyze their work in more detail.

Humanizing Dance is the result of a thesis project, but it is also a research area for which several application are possible. On 7th May 2022, during the "Open Mad", in the "Murate District" of Florence, a workshop was held with the dancer Lucrezia Gabrieli. During an improvisation performance lead by the artist, the audience actively participates in the construction of the data. They collect data in each stasis of the dancer. In this way, viewers can extrapolate data relating to the directions of

her eyes and body. In this way, the audience could read additional data, through the visualization on their sheets. This is just an experimentation of a project that is still open and in the process of being defined.

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Lucía Fernández

Versolid: analysis and visualization of human

Language / Thought / Meaning / Poetry / Visualization

As a result of globalization and enhanced by the possibilities offered by the new digital media, we live in a reality in which information reaches us faster and faster and in greater numbers. New stimuli, resources, challenges, opportunities... We want to know more and know faster. Inevitably, this is transferred inversely to the degree of analysis and depth in which we internalize this information. Applied to language, this turns it into a hasty and superficial speech. When language becomes homogeneous and generalized, we face a problem that compromises knowledge.

Unlike what may seem, language is not a tool that human beings have invented to communicate. Descartes declares that its essential characteristic, and by extension, the one that defines and differentiates us as a species, lies in the unique possibility of creating new concepts autonomously. Language allows us not only to express our own thoughts, but also to understand and respond appropriately to those of others. This makes it the main organ of thought and imagination and, consequently, its degradation will limit our ability to interpret and understand the world (Chomsky,1978).

When language is used beyond its purely communicative purposes, its expressive possibilities explode. So, poetic language is the quality that comes closest to its creative essence (Schlegel, 1801). In poetry, words cease to be mere reality indexes in order to generate new concepts and ideas. Through its rhetorical nature and the particularity of its form, it can spread out universes of meanings and activate the mind. In this context we will say that the richness of language lies in its poetic dimension. To confront the current problem of thought automation, this project highlights the expressive possibilities that come from a non-linear use of language. To do so, it explores through infographics the ways in which poetic language can create large amounts of content, providing tools to understand and appreciate the scope of this language’s dimension.

The course of history shows the relation between words and images as everything but anecdotal or casual. The truth is that the abstract nature of language itself facilitates an approach from non-verbal means of expression like graphic resources. The outcome of this relation can already be observed in the Vanguards of the early twentieth century. From the Futurists "words-in-freedom”, which served to illustrate and disseminate their ideological discourse; through the Dadaist revolution (first literally, then graphic) against reason and logic, to the Surrealists, who used images to reflect how the mind works and produces meaning.

These works, like many others, expose the usefulness of graphic language to expand the limits of thought and meaning. More current examples are Visual Poetry, by materializing the connections between different concepts (Joan Brossa, Chema Madoz, Augusto de Campos...); the alternative musical scores of musicians such as John Cage or Llorenç Barber, who code information through visual components, or even some of the new media used in the field of Digital Humanities, which have brought about a new perspective for reflections on language and visuality.

In the light of the usefulness of graphic resources to deepen the more abstract dimension of language, Versolid is proposed. A visual representation system that allows to translate into shapes, sizes, colors... the data extracted from the formal analysis of a poem, and so to reveal graphically the connections that occur when this type of language is used and that award the words a broader meaning than their description in the dictionary.

Its development began researching on Spanish versification. Based on the information gathered, the most relevant phenomena were organized into 3 levels of intervention:

- Phonological: rhyme, accent, meter, pauses...
- Morphological: grammatical categories, concordances, syntactic functions...
- Semantic: synonymy, polysemy, rhetorical figures, associative fields...

Next, through a corpus of poems from different periods, styles and authors; an exhaustive process of experimentation began, both to obtain conclusions about the real application of these resources, and to find the best way to visually represent their functioning. This resulted in four different graphic systems, one for each group of selected data (pause, accent, rhyme and grammatical category), which allow us to go deeper into the interpretation of a poem from a new perspective.

Versolid explores the expressive possibilities of poetic language through graphic resources making the detection and understanding of its linguistic peculiarities easier and highlighting its effects on communication. Far from trying to break down poetry or drawing it in an attractive way, Versolid is a system designed to appreciate the poetic language and encourage a further reflection on its involvement in the personal and social development of human beings.

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anima.mundi - making the invisible visible

ecocentrism / insects / interaction design / data visualization / opensource

A strange phenomenon we are looking at today is the disappearance of large numbers of species in an unusually short time span (Cowie et. al., 2022). Specifically, we are facing for the sixth time in world history a disproportionate decline in biodiversity that occurs across the planet, but this is the first case where human behavior is driving it. The extinction of a species involves a series of chain reactions caused by the disappearance of all interactions among species and the environment, for example: the disappearance of pollination, seed dispersal, predation.

The survival of a few individuals of a species is not sufficient to supply to these needs, as the more interactions are lost, the more unpredictable an ecosystem is likely to become. In this scenario, insects are a huge example of the invisible importance of the ordinary. Their role is almost always ignored, at least until they will disappear. In this regard, entomologist Wagner (Wagner, et. al, 2021) from the

University of Connecticut, speaks of a "world without flowers, of silent forests, a world of excrement, dry leaves, and putrid carcasses piling up in cities and on roadsides, a collapsing world in which decay, erosion, and loss would extend to all ecosystems, moving from predators to plants."

This is the scenario in which anima-mundi fits: a project born within the Interaction Design Lab of the University of San Marino, held by Prof. Silvia Gasparotto and Prof. Michele Zannoni. Specifically, anima-mundi aims to enhance the entomological biodiversity characteristic of urban public spaces. It is an ecocentric project (Nisi et. al., 2020) that aims to contribute to the conservation of the planet by focusing on the insects that inhabit it, observing their changes in numbers and species over time in relation to climate change and human behavior. In recent years, the drastic decline of the number of insects worldwide (Cowie, et. al., 2022) has brought to the need of monitoring data useful for assessing life fluctuations in various populations. Anima-mundi therefore intends to collect data and communicate it in order to raise awareness of the importance of insect conservation. It is aimed at citizens around the world: ordinary people living in cities, researchers, who can use it as a monitoring tool to study and share their measurements, and also schools helping younger generations to understand the value of these species. The project consists of hotspots: insect refuges that are placed in public space and act as shelter, while inside them, a Raspberry Pi 0 board, ensures the acquisition of information about what is happening around. Through sensors air quality, temperature, and humidity are detected, while through a 5/8 Mp Raspicam camera module, images are captured and sent to an artificial intelligence system that counts and recognizes insects in transit. A website provides a window from which to explore conditions recorded in cities around the world where at least one hotspot is located. The recorded data are collected in a database, processed and visually translated in real time into navigable and interactive infographics. It is possible to observe, for example, temperature, humidity and air quality in relation to the amount of insects present in different time frames: from 24 hours to 365 days. An added value of the project is the use of gamification techniques (Hassan & Hamari, 2020): the use of the logic of games in a non-playful context. The competitive mechanism is used as a stimulus to raise awareness and take personal action to contribute to insect conservation. In detail, the online platform shows city rankings updated in real time according to the data collected. Depending on the filter used, top spots are awarded to cities with the correct insect numbers, better air quality or relative to progress over the years.

To ensure and facilitate the large-scale dissemination of anima-mundi, the self-production of the "hot-spot" object is facilitated by the sharing both open source’s blueprints (Gasparotto, 2020) – that can be printed in 3d (in ceramic material and

PLA)– and electronic components. The user will also be guided by a digital manual, in setting up the electronic components and assembling the printed parts. The importance of data collection for anima-mundi is encapsulated in the need to compare species behaviors over time. Until a few years ago, there was little or no monitoring of insects: the surveys done did not look to the future, but were a pastime for those in the field. Today, in fact, such data are insufficient to establish a reliable quantitative and qualitative comparison between the past and the present. Anima-mundi makes it possible to reflect accurately on their variations and to take appropriate measures for the protection of all species.

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