SENSING KOTTI

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Abstract

The objective of this project was the parametric generation of a visual representation of emotions and impressions associated with the urban Kottbusser Tor area in Berlin. The project aimed to analyze and categorize the emotions of people visiting this area, and translate them into a unique and dynamic visual representation of the place.

To gather the necessary data, a variety of research methods were used, including interviews, surveys, and observations. The collected information was analyzed to identify patterns and themes in the associations and emotions of those who visited the Kottbusser Tor and its surroundings. These deduced correlations were then translated into specific emotions that were used to inform the composition, light, and color choices in the resulting three-dimensional renderings.

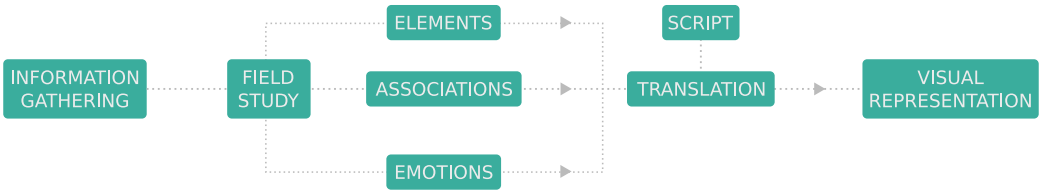

Figure 1: Process

The resulting renderings were created using Blender, a powerful open-source three-dimensional creation software. The software was used to create expressive images associated with the specific urban situation, with elements arranged in such a way that the emotions identified in the research process were as accurately as possible represented. The final images are intended to provide the viewer with an immersive and relatable representation of the emotions associated with this place.

The project demonstrated how emotions can be represented through visual art, and highlighted the importance of research and data analysis in informing the creative process. Furthermore it showed the potential of scripting and rendering as tools for creating immersive and dynamic representations of abstract inputs in order to achieve concrete results. The project did not aim to represent a place but rather to represent people's feelings and memories associated with a specific place and how they relate to that place. This makes the project subjective and personal.

The final output of this project is a series of artistic images which provide a unique perspective on the Kottbusser Tor area, by representing the elements that have been gathered during the field study throughout this project. These images could potentially be part of an installation or exhibit that aims to convey the emotions associated with this place in a visually striking and immersive way.

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Introduction

The Kottbusser Tor area in Berlin, commonly referred to as 'Kotti', is a unique and historically significant place located in the central eastern part of the Kreuzberg district. The area is steeped in history, memories and emotions, and is a melting pot of social classes and cultures. The Kottbusser Tor square has become an iconic representation of the contrasts and social themes that define this area, Kreuzberg and to some extend whole Berlin. It is a place that has been reflected in many artistic works, literature, music and pop culture.

One of the reasons that make this specific area unique is its location. It is situated at the intersection of three main roads, close to the canal and wrapped around a traffic circle. This position has played an important role in shaping the history and emotions associated with that place. Additionally, the area is interesting because it consists to a large extent of social mass buildings that were built in the seventies and contributed to the strongly perceptible ghettoization.

Figure 1.1: Map of Kreuzberg-East

The area has seen a lot of social movements, both progressive and cultural, in the past, which has left a deep impact on the people's emotions, memories, and

feelings towards this place. Furthermore the Kotti has been a stage of many historical events, positive as well as negative and has left a deep emotional impact on the residents and neighbors. These events have strongly shaped the emotional landscape of the area and are still strongly perceivable when speaking to the people with a connection to this place.

Despite its rich history and cultural significance, the Kottbusser Tor area evokes a wide range of emotions in almost all the people that live or visited Berlin. Ask several Berliners about their feelings towards this place and you will likely receive vastly different responses, ranging from fond memories and nostalgia, to disappointment, fear, frustration and even anger. However, one thing is certain: every Berliner has a strong feeling about this place, whether it may be positive or negative.

This emotional charge and the extreme contrasts of the Kottbusser Tor area make it an ideal place to conduct an sensible analysis and to explore and represent with this project the values associated with this area through visual art. Initially the intention is to gather and analyze data from people who have a connection to this place and then subsequently to translate those emotions into a visual representation. Therefore it is of great importance to understand the context of the urban situation historically, socially and politically as well as physically, which requires an extensive background research on the Kottbusser Tor and its surroundings.

In this context, the work 'Kotti reworked' by the Canadian artist Larissa Fassler about Kottbusser was an important source of inspiration. over a period of ten years, the artist immersed herself in the surroundings as a silent observer and documented all her perceptions in various collage works. Indeed, a closer look at her artworks reveals not only visual features such as graffiti or the facades of buildings, but also a multitude of written conversations and statements that have been perceived over the years in this place. The intention of this work is to refute the apparent emptiness of the square by showing the dynamic social activity that is taking place around that area.

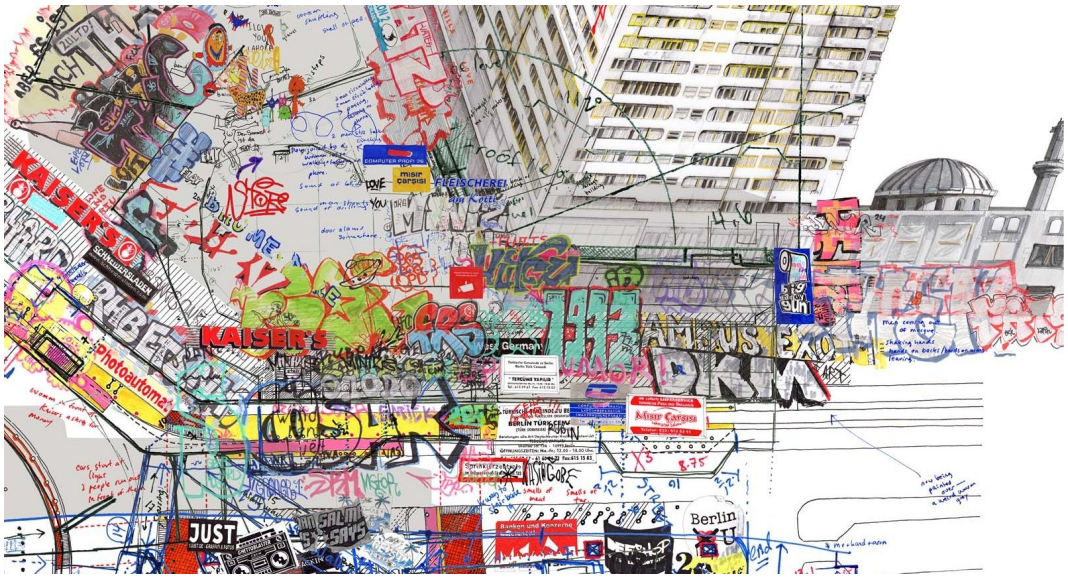

Figure 1.2: Kotti Reworked

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Field Study

The information collection process for this project employed a social and anthropological approach, utilizing a combination of observation and survey methods to gather data about the emotions and associations of individuals with the Kottbusser Tor area. The study aimed to gain a comprehensive understanding of the emotional landscape of the area, and to provide a rich data set for further analysis and representation.

The first phase of the field study involved participant observation, in which the researcher spent several days in the Kottbusser Tor area, observing and noting impressions of the physical and social environment, the interactions between individuals, and the emotions evoked by the area. This approach is commonly used in anthropology to gain an understanding of the behavior and culture of a particular group or community. The researcher made observations during different times of the day as well as different days of the week to gather a comprehensive understanding of the emotional landscape of the area.

Figure 2.1: Collected Associations

Following this, a survey was conducted with individuals from a diverse range of backgrounds, including age, gender, and social background were the par-

ticipants where asked to provide words or phrases that they associate with the Kottbusser Tor. The data collected from the survey was used to identify patterns and themes in the associations and emotions and served as a concrete starting point from which further studies could unfold by providing a representative sample of the emotional landscape of the area. Subsequently the survey data was qualitatively analyzed to understand the sensible associations surrounding the urban area.

In addition, the movement of individuals in and around the Kottbusser Tor area was mapped, providing information about specific locations where the concentration of passerby is high and where different streams of people intersect. This information was used to identify key areas of interest for further observation and analysis. The mapping data was analyzed quantitatively to understand the flow of people and the hotspots in the area.

Lastly, elements of the environment were noted, documented and three-dimensionally modeled, including architectural elements such as facades, houses, bridges, and metro stations, as well as more sensitive elements such as the fruits of the fruit seller or satellite dishes. These elements were selected as they are likely to have an correlation with the emotions and associations of individuals towards the Kottbusser Tor area. The documentation of the physical environment was essential in order to accurately depict the abstract associations with the help of concrete urban elements.

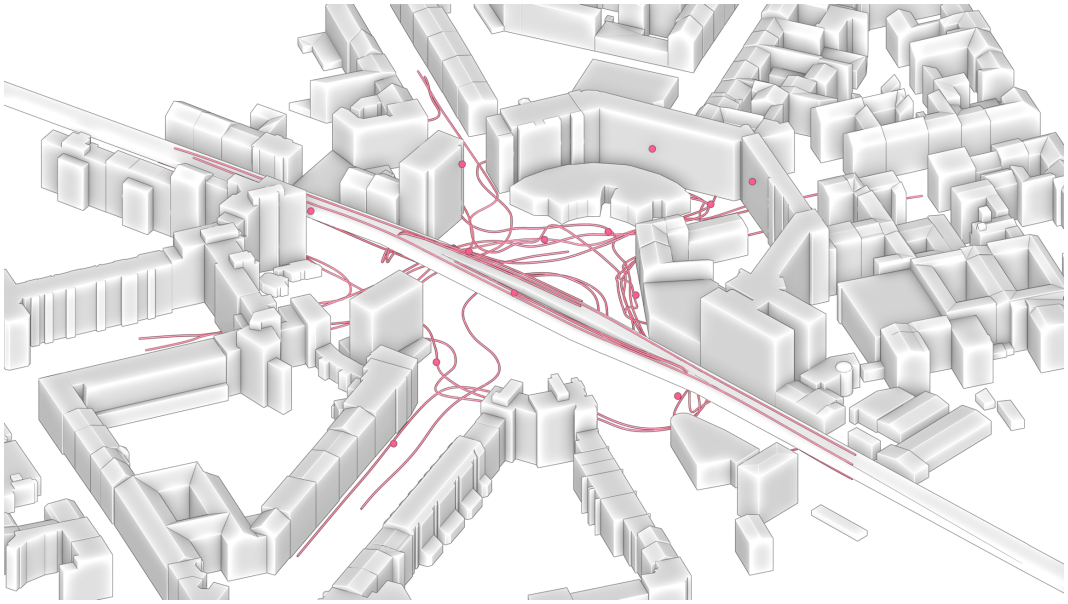

Figure 2.2: Streamlines of Movement and Concentration

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Emotional Mapping

The emotional mapping section of this project aimed to translate abstract subjective feelings to concrete physical characteristics using a socio-statistical approach. This process involved gathering, analyzing, and evaluating the opinions of as many different people as possible in order to gain a comprehensive understanding of the interplay between subjective and objective elements.

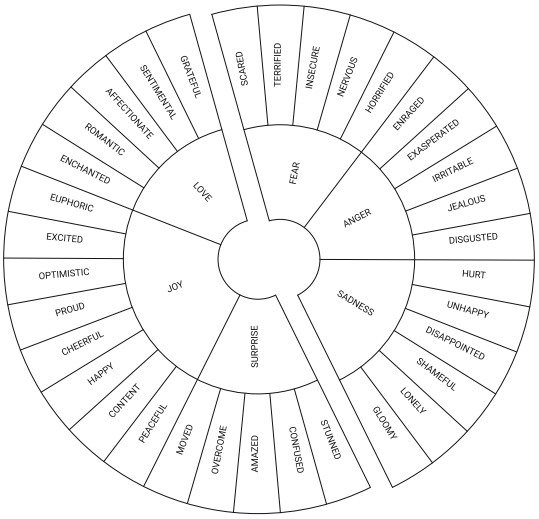
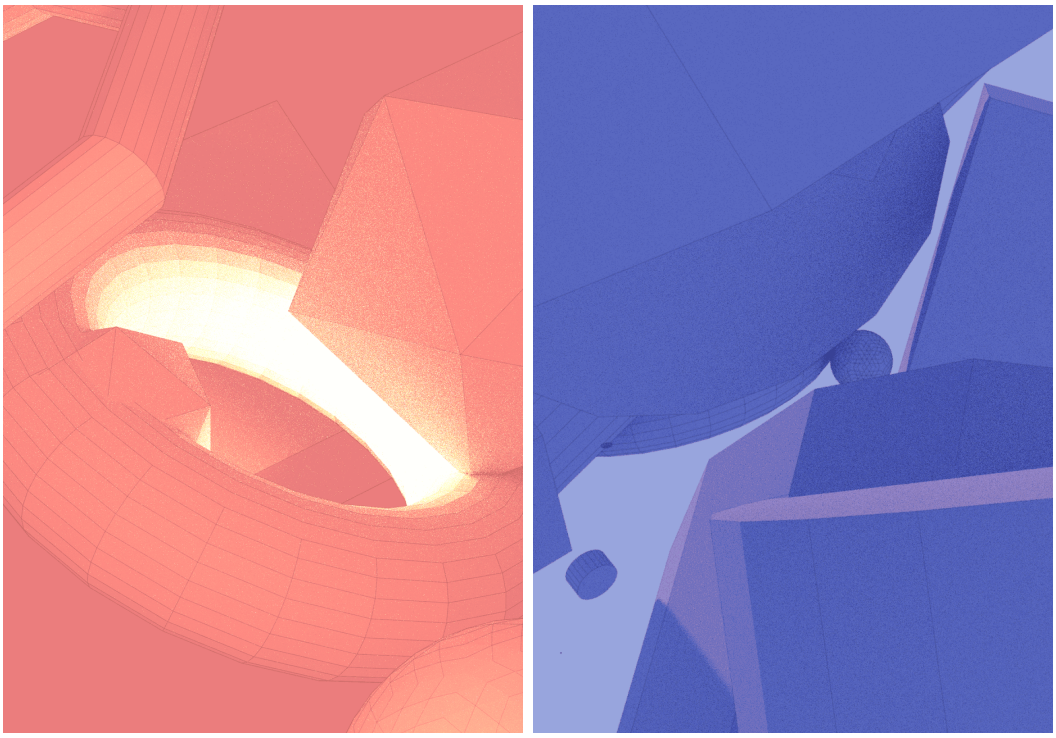


Figure 3.1: Emotions

To begin, a python script was created that, when executed within blender, generates 1000 different images. These images show various geometric shapes, each differing in several aspects such as composition of the elements, colors, exposure methods, exposure directions, strength of the shadows, brightness, camera and element position, sharpness of the image, and the distribution of those elements on the image canvas. These images were created to represent a wide range of visual possibilities that have the potential to evoke different emotions. The script was designed to randomly generate the images, which helped to ensure that the results were diverse and representative of different visual possibilities.

To identify the emotions associated with these compositions, a collection of

essential basic human emotions was created with the help of current psychological knowledge. These emotions were selected in order to represent a broad range of human emotions, including positive as well as negative emotions. Participants were then shown the synthetically generated images and asked to associate them with the proposed emotions. This approach used the method of semantic differential which is commonly used in social sciences and was helpful measure the impact of the generated images and their stimuli.



(a) Amazed (b) Gloomy

Figure 3.2: Rated Synthetic Images

Through this process, translation schemes were derived from visual impressions to subjective feelings. The data collected from this emotional mapping process was analyzed qualitatively and quantitatively, using common statistical analysis methods. This procedure helped to identify patterns and trends in the associations between the different compositional properties represented in the image database and the emotions.

The emotional mapping approach was critical in providing a thorough and academic translational rule set in order to proceed with the creative process and to be able to subsequently design a set of compositional rules that accurately reflects the emotions associated with the urban area of interest. The use of the sociological approach and the use of statistical methods helped to ensure that the results were representative and reliable, and that the conclusions drawn from the data were valid.

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Translation

The final stage of this project explains in detail how the complete process of translating the associations with the Kottbusser Tor collected at the beginning into an emotion, and then from that emotion into visual properties, is performed. This section is critical in understanding the methodology used in creating the visual representation of the study object.

```
{
    "emotions": {
        "negative": {
            "fear": {
                "scared": [
                    "men's_groups",
                    "dealer",
                    "dealer",
                    "pickpockets",
                    "money_laundering",
                    "fear"
                    ]
                }
            }
     }
}
```

The process begins by randomly selecting a word from the list of associations collected beforehand during the field study in chapter one. The selected word is then analyzed to determine the emotion associated with it. This emotion belongs to a basic emotion, such as love, joy, surprise, fear, anger, or sadness etc. Additionally, this emotion is assigned a connotation of positive, negative, or neutral. These emotions have already been associated with visual properties during the emotional mapping stage where participants were asked to associate emotions with the synthetic images. So, the artistic composition rules can be automatically defined for each word independently.

```
{
    "translation": {
        "scared": {
            "sharpness": "blurry",
```

```
                "shade": "dark",
                "horizontal_origin": "far",
                "lighting_type": "point",
                "point_amount": "few"
                }
        }
}
```

Once these composition rules are defined for the selected word, a coordinate is randomly chosen from the coordinates that where collected through mapping methods, where the movement of individuals in and around the Kottbusser Tor area was tracked to identify specific locations where the concentration of passerby is high and where different streams of people intersect. Since each coordinate is linked to different essential three-dimensional elements, these objects are placed and scenarized as three-dimensional meshes in the canvas space according to the defined composition rules coordinated by the logic of a python script.

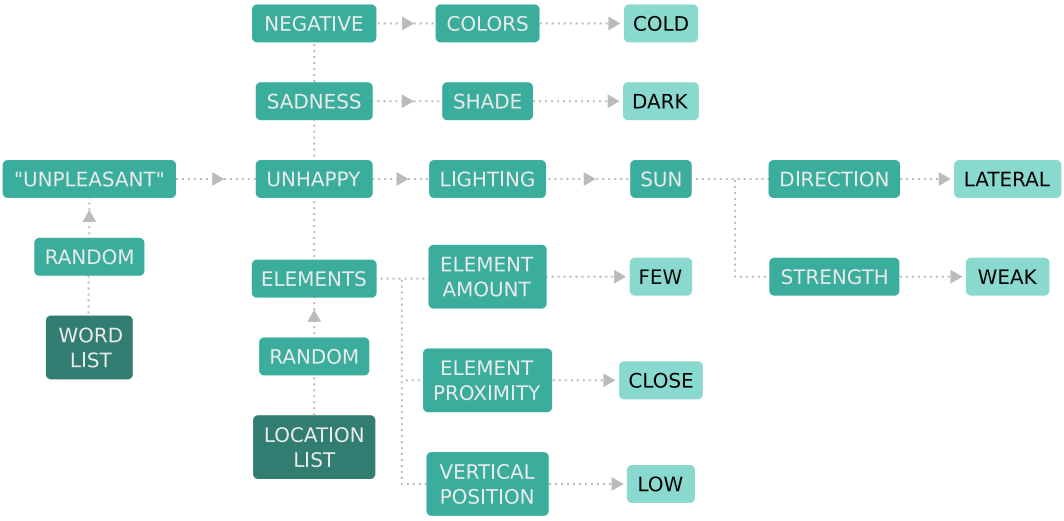
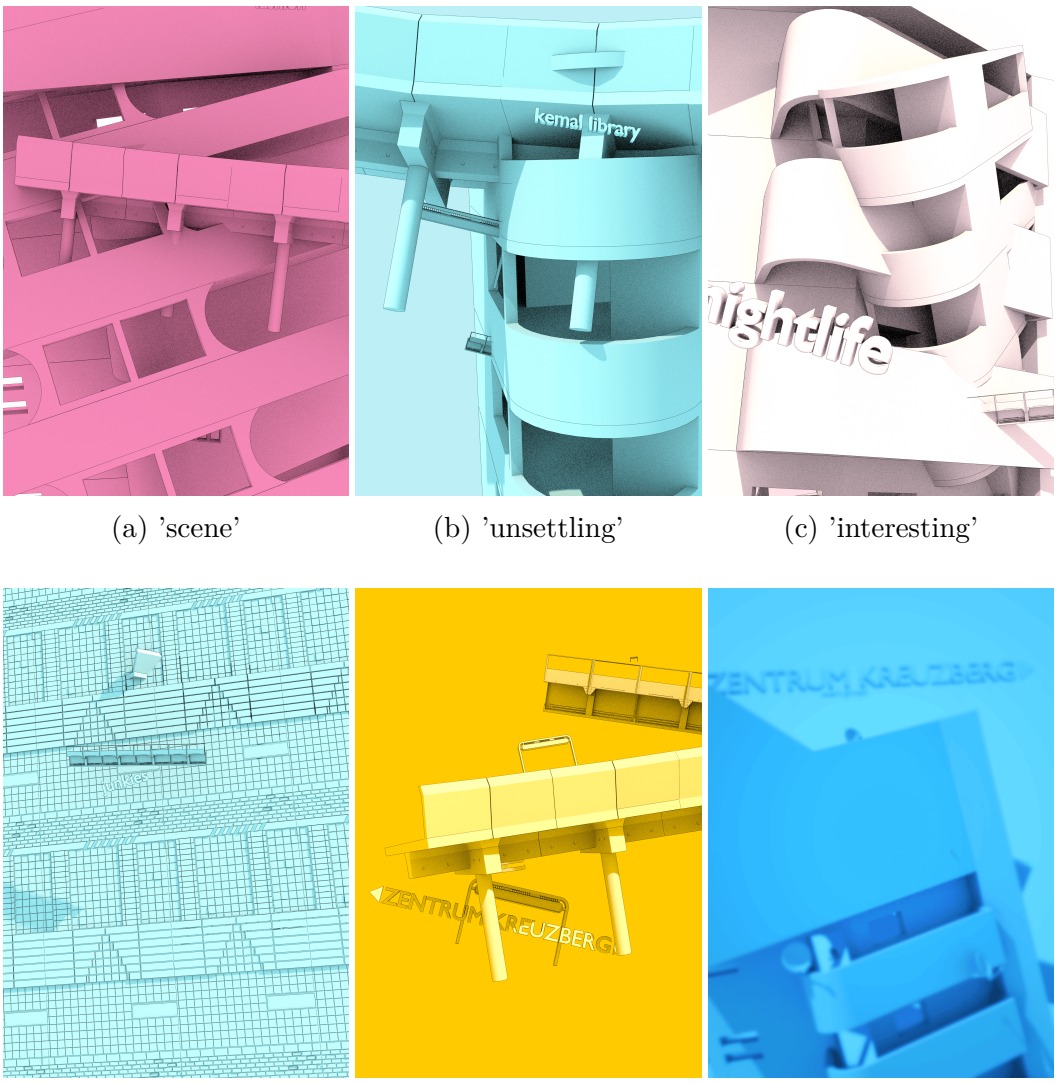


Figure 4.1: Process Example of the Word 'Unpleasant'

Finally, a render of this scene is composed and generated in blender. The script is designed to automate the process of translation between the subjective input strings and the resulting visual representations quickly and efficiently. The use of python and blender allows for a high level of control and flexibility over the visual elements of the image, and the ability to automate the process of generating the results. Furthermore, the use of computer aided generation is necessary, since this allows a completely random choice of the input parameters.



(a) 'scene' (b) 'unsettling' (c) 'interesting'

(d) 'full' (e) 'original' (f) 'fear'

Figure 4.2: Results with respective Inputs

The results generated in this way are evidence of an impressive variety and expressiveness. Through the different characteristics of the compositions, such as a strong blurring of the depicted objects or the use of dark color tones or a dramatic exposure coming from below, an emotionality of the resulting images is noticeable. However, it should be noted that this does not apply without exception to each of the compositions generated so far, as some of the randomly generated images defy the translation rules due to the influence of randomness.

5

Conclusion

In conclusion, this project highlights the various important aspects of understanding an emotional construct of a physical place through the use of interdisciplinary approaches. The Kottbusser Tor area served as an ideal case study due to its rich history, strong contrasts and emotional charge. Through the use of field studies, mapping techniques for the emotions and translation, this project succeeds to create a visual representation of an urban area that accurately reflects the emotions associated with it.

The field study, which included observing the behavior of people and collecting their associations with that specific area, provided valuable information about the environment and its inhabitants. The emotional mapping stage allowed for the translation of abstract subjective feelings into concrete physical characteristics and demonstrated the importance in the use of psychological and statistical methods. Finally, the translation stage leverages the advantages in using a script to generate and render images that respect the predefined rules of translation.

It is difficult to say how far the artistic results of this work could be relevant outside their artistic validity. However, it is undeniable that the interdisciplinary skills learned are beneficial regardless of their domain of application.

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