

The Beautiful Encounters

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ABSTRACT

This paper introduces an art project called “The Beautiful Encounters” that resonates with the surrealist painter Rene Magritte’s work and aims to introduce an interactive scenario as a case study that applies AI technology. The article’s focus lies on the research process exploring methods to integrate the real-time image of the sky into an interactive artwork. The technical part explains how multiple technologies, like face tracking, its alignment, the AI model of face-parsing, shaders, and web technologies, are combined in the project. In the end, we discuss the importance of contextualizing AI-related artworks in relation to art history.

CCS CONCEPTS

• Arts and humanities; • General conference proceedings;

KEYWORDS

AI art, face-parsing, face tracking, Rene Magritte, interactive art, installation, sky, AR, image segmentation

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1 INTRODUCTION TO RESEARCH PROCESS

The project started with the intention to integrate the real sky into the artwork. The idea was to offer an interactive experience of a skyscape by adding digital clouds to existing ones in order to compose a face of a viewer. This idea is somehow similar to the artwork “We are the Clouds” (2020) by Varvara & Mar where the audience’s body is transformed into a cloud and becomes a part of the digital sky [1]. However, to work with a body silhouette is much easier than with a face. To elaborate, we have made several attempts to compose a cloudy face image. However, the results of an AI-generated image when trained with the data set of clouds with the pix2pix model [2] were not satisfactory. When it comes to overlaying imagery onto the real sky, we failed to find a solution to display on top of a glass facing the atmosphere in the given time frame for the project.

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After intensively working with sky, clouds, and faces, the research process naturally led us to the work of the recognized artist Rene Magritte, who is known for painting clouds and surrealistic portraits. His painting “The Beautiful Relations” (1967) served as the main creative trigger for us. Revisiting Magritte’s work from an artist’s perspective working with the latest technology, one thinks immediately about concepts, like face-parsing and image segmentation.

When looking at Magritte’s paintings, one always wonders what is real and what is not. The artist intentionally plays with the concepts of reality and ambiguity by slightly twisting things in his works. Our project resonates with the ideas of Magritte by offering a slight twist to reality: encountering your face in the sky above you. In short, the project aims to pay homage to Rene Magritte’s work.

When it comes to the artworks that use AI technology, surprisingly, lots of these works try to imitate modern paintings, for example, “Memories by Passerby I” (2018) by Mario Klingemann [3] or the first sold AI-generated artwork on the auction “Edmond De Belamy” (2018) by Obvious [4]. These works used thousands of painted portraits for training the algorithms to generate images with similar aesthetics. To explore a different approach, we decided to talk about a single painter’s work and artistic beliefs instead of training on numerous paintings. In other words, “The Beautiful Encounters” translates Magritte’s approach to the age of AI. Another goal was to manifest the imagination of the audience as an interactive experience.

2 PROJECT DESCRIPTION

“The Beautiful Encounters” is an interactive installation that places the viewer’s face parts in the local skyscape (Figure 1). The installation uses a real-time sky image displayed via a webcam on the screen. When one is in front of the screen, one sees exactly the same sky as one would see from the window, but also additional face elements. In a way, both parts are true, the sky and the face, but their combination makes the work surreal.

Since the sky is unpredictable, we have created an artificial cloud, which integrates itself with the surroundings and allows us always to draw the face on the cloud. It is possible to talk about video-see-through and AR in the case of this project. However, the work goes beyond these concepts because suddenly, one can see his/her face regions appearing in the sky image. In other words, we are not only augmenting reality but also playfully and mindfully relating to the local skyscape and Rene Magritte’s practice.

3 TECHNICAL REALIZATION

Regarding the technical setup, two cameras and a computer with a CUDA compatible NVIDIA GPU are used in this installation. One



Figure 1: Installation demo of “The Beautiful Encounters”.



Figure 2: Face segmentation with BiSeNet model.

camera captures the sky and another one a viewer’s face. The side of AI is realised in Python. The system tracks the audience’s face until it is lost from its’ view. For face tracking purposes, OpenCV and dlib libraries are applied. In order to position a face to the designated place on the screen, we use face alignment. The image is computed with face-parsing. PyTorch is a modified BiSeNet model for the face segmentation to get different face regions: eyes, eyebrows, nose, and mouth (see Figure 2) [5, 6], which serves its purpose.

Next, the face image and the mask of its areas are sent as one image via an OBS virtual camera using pyvirtualcam library (see Figure 3). This approach enabled us to flexibly combine software components for image processing and allow the two processes - segmentation and rendering - to work in parallel. Rendering is done in a browser by using web technologies and Javascript. Our software uses React-three-fiber library, which is the React rendered based on Three.js. First, the program renders the camera image of the sky as a background. Then it generates the procedural cloud shader in the

upper layer of the background. And at last, the face’s regions (face image + mask) are rendered on the top layer. The render shows only certain facial areas: eyes, nose, mouse, and eyebrows. The rest of the face area remains transparent, creating the different layers of Magritte’s style composition.

4 CONCLUSIONS

“The Beautiful Encounters” is an art project that integrates references from art history, contemporary tech discourse, and the interactive art field. We believe in the importance of maintaining contact with art history and contextualizing new works that explore novel possibilities that offer AI technology. The project intends to go beyond generating painting-like images; it tries to imagine interactive encounters that draw on the work of surrealist artist Rene Magritte as a homage to his practice. In other words, we aim to contribute with a meaningful application of AI tools that can serve as a case study for scholars of different fields.

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Figure 3: Segmentation with BiSeNet model.