

Affective Color Fields: Reimagining Rothkoesque Artwork as an Interactive Companion for Artistic Self-Expression

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ABSTRACT

In this art project, we create *Affective Color Fields*: an interactive artifact that takes in a user’s narrative of their emotional experiences and dynamically transforms it into Rothkoesque color fields through emotion classification. Inspired by Mark Rothko’s abstract depiction of human emotions and Merleau-Ponty’s phenomenological inquiry, we wish to establish an intimate relationship between interactive art and the subject by employing user’s own interpretation and framing of life events. Through the performative and improvisational art-making process, users can playfully appropriate our artifact for a rich and personal aesthetic experience.

CCS CONCEPTS

• **Applied computing** → **Media arts**; • **Human-centered computing** → **User interface design**; *Mixed / augmented reality*.

KEYWORDS

affective computing, abstract expression, aesthetic interaction, informative art, color fields, phenomenology

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1 INTRODUCTION

Experiencing emotion has often been regarded as the crux of human experience, and many artists have explored unconventional and experimental methods to express emotionality. Mark Rothko famously depicted basic human emotions through large abstract rectangular fields of colors with blurred outlines that distinguish themselves from the background. His use of extremely reduced form and colors

allows his works to transcend any specific cultural or historical reference [1]. When the viewer offers emotional input from their life experiences to interpret or contextualize the painting, they can empathize with the emotion being depicted and feel intimate with the artwork. This performative aspect of experiencing Rothko’s paintings and its emphasis on the perceiving subject aligns well with the phenomenological thought of Merleau-Ponty who states that our mind is inherently tied to the physical world [2]. Since the perception of an object inevitably requires the presence and active involvement of the subject, the study of the perceived object rather sheds light on the subject who perceives, and thus, viewing Rothko’s artwork becomes analogous to looking in a mirror [2].

Inspired by Rothko’s depiction of human emotion and his emphasis on the first-person experience of the subject, we propose an interactive artifact that listens to the user’s narrative of their experiences and visualizes its interpretation of emotional tones of the text of the narrative as Rothkoesque color fields. As the color fields are devoid of any real-life metaphor or depiction of the world, we expect viewers will actively engage in the enigmatic yet meditative process of identifying familiarity with their narratives. This performative art-making-and-viewing process can make the interaction with the artifact engaging and interactive.

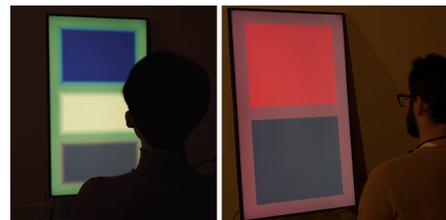


Figure 1: Viewers interacting with *Affective Color Fields*.

2 AFFECTIVE COLOR FIELDS

Data Collection. As the user talks to *Affective Color Fields* (ACF), their speech is recognized and converted into text by the speech recognition API built into HTML5. This new text data is added to the history of the user’s previous interaction, and our artifact then performs emotion classification on the entire text.

Emotion Classification. In this work, instead of training a new classification model, we employ Watson Tone Analyzer, to perform

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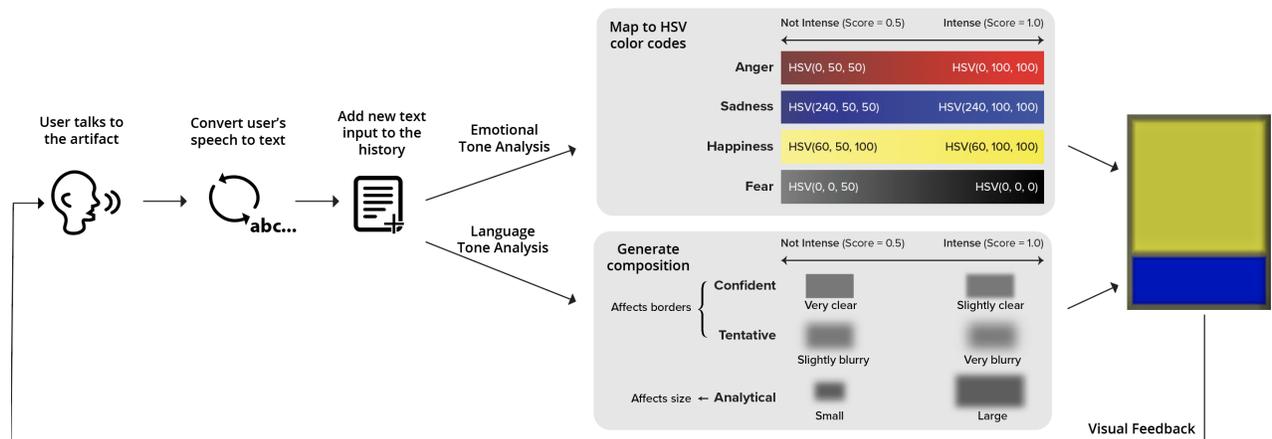


Figure 2: The system flowchart.

emotion classification. Watson Tone Analyzer is an intelligent application programming interface (API) which analyzes emotional and language tones associated with texts. It takes text as the input and outputs sentiment scores (from 0.5 to 1) for each of the four predefined categories of emotional tones (see Figure 2). The final emotion model of Watson Tone Analyzer achieves F1 score of 41 percent and F1 score of 68 percent, when it was evaluated against the popular benchmark datasets ISEAR and SEMEVAL, which is better than the state-of-the-art at that time [3]. We found its performance sufficiently good for our task, considering the main focus of our paper is an artistic visualization of user’s emotional state.

Visualization. We deploy Flask as our backend server and Vue as our front-end framework. The Processing Development Environment embedded in the front-end displays color fields to the web browser in real time based on the analysis of user’s emotional account from the backend. Our decision on which color to use for each emotion has been based on Sutton and Altarriba’s research on the color associations to emotion-laden words [5]. By employing the sentiment score for each emotional tone from Watson Tone Analyzer API and the HSV (Hue, Saturation, Value) color code of the emotional tones, we compute the HSV code that will be represented as a color field as shown in Figure 2. The score for the language tones is mapped to the elements of composition such as the blurriness and the size of the color fields.

Since ACF is designed to retain the vestige of the user’s past accounts, users can have a continuous dialogue with the artifact. When new speech from the user is recognized by ACF, the new data will cause subtle changes in colors and composition. As users perceive the changes, they can give a new account into the system that will further change the color fields. This loop continues until the viewer decides to pause the interaction. The artifact slowly evolves over time with the user, and this synchronizing experience promotes a personal bond with the artifact. Through this dialogue-like interaction, ACF can be used as a tool for artistic expression. Because users are actively involved in framing their emotional experiences and reflecting on them, they can appropriate ACF to transform their emotional account into an artistic expression. Thereby, user assumes the role of both artist and viewer. This performative

aspect enables aesthetic interaction, which regards the human as the improvisator and human-machine interaction as a play, whose purpose is to spur the user’s imagination and be thought-provoking [4]. In our model, users can even deceive the artifact by giving a fake account of their life, or they could talk about the ideal version of themselves that they wish to achieve. Through this playful interaction, they inevitably frame their life experiences in a way that requires active introspection and interpretation of events. In contrast to surveillance-style affective computing, ACF allows its users to playfully appropriate the system and thus aims to trigger the user’s imagination and provide richer aesthetic experiences.

In our demonstration, users interacted with the artwork based on three different scenarios, and we received positive feedback. Further information is documented in the demo video included in the supplemental materials.

3 CONCLUSION

Affective Color Fields transforms a user’s narrative of their emotional experiences into Rothkoesque color fields and aims to induce the feeling of intimacy through a continuous dialogue. By putting an emphasis on the user’s ability to appropriate technology, ACF encourages users to actively interpret and frame their emotional events during the interaction. We hope that ACF can become an interactive companion for the user’s artistic self-expression as the artifact will evolve according to the history of their interactions.

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