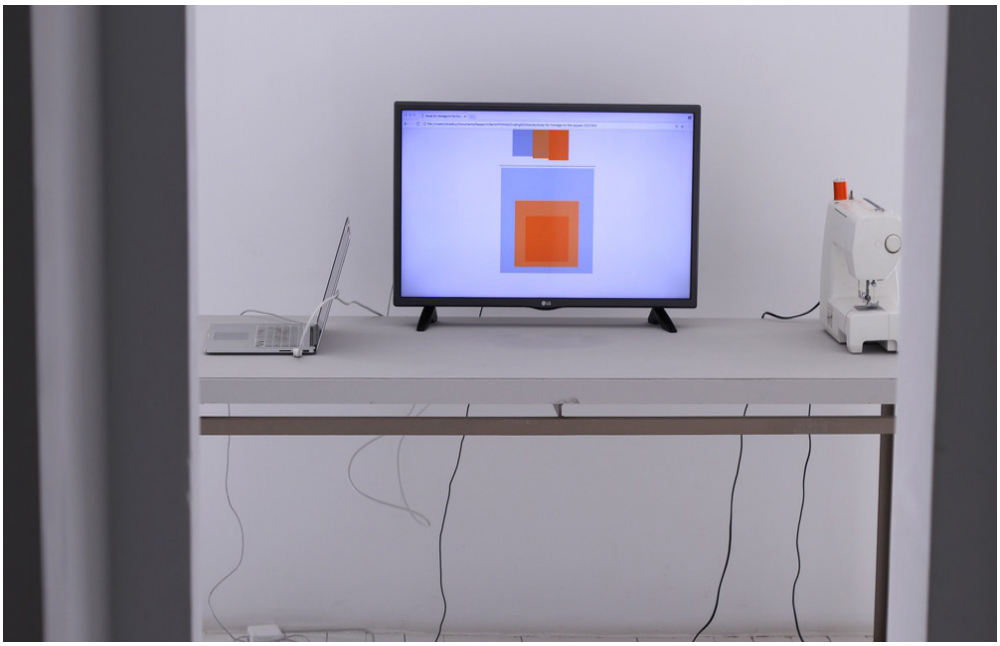
2017.xCoAx.org

Lisbon
Computation
Communication
Aesthetics
& X

# SKIRTING COLOR // STITCHING CODE: VERSIONING ALBERS IN THE BROWSER

**VICTORIA BRADBURY**
vbradbur@unca.edu

University of North Carolina
Asheville, United States



**Abstract**

In *Skirting Color // Stitching Code*, a performer alternates between live coding a Josef Albers color study website and manually machine embroidering the same HTML and CSS onto her skirt, turning the garment around her waist as she sews. In this paper, Albers's practice, theory and pedagogy are evaluated as they relate to this performance, to code, and to other artists' works.

**Keywords**

Performance
Live Coding
Projection
Embroidery
Color Theory
Instructions

# 1. PERFORMANCE OVERVIEW

In *Skirting Color // Stitching Code*, the actions of a performer alternate between live coding a color study website and manually machine embroidering the same HTML and CSS onto her skirt. Throughout the piece, she is seated at a pair of adjacent desks in an indoor performance space wearing a full skirt and blouse, each sewn from neutral fabric. The code and color-study visuals are projected behind her. As the stitched HTML and CSS trace her hem, the performer repeatedly stands up and turns the skirt around her waist to continue sewing. As the performance cycles into actions of coding, stitching and turning the skirt, the artist's gestures become repetitive and loop through three movements.

**Instructions: Skirting Color // Stitching Code**
Reflect Josef Albers' color studies in HTML and CSS.
Stitch lines of code onto your skirt.
1st movement: orange
2nd movement: black
3rd movement: blue

*Skirting Color // Stitching Code* was developed in the artist's first year living in Asheville, North Carolina near the site of Black Mountain College, where Josef and Anni Albers lived and taught from 1933-1949 (Albers Foundation). The piece contains two phases, coding and sewing, that reflect one another and repeat in a looping fashion. It may be performed in multiple iterations until the costume surface is covered in code.

## 1.1. Coding Phase

During each coding phase, the artist is seated at the laptop desk, where she creates  tags in HTML and styles them in CSS to approximate a specific Albers color study. These color studies are live-coded, meaning they are built in real-time in front of the audience. This requires a trial-and-error process to arrive at the correct layout and colors. The code is typed in Brackets software and repeatedly refreshed in the Chrome browser. This process of live-coding the HTML and CSS gives the audience a chance to see how web code is written and to witness the process of turning an analog painting into a digital design using <divs>. The colors are applied to each  with the 'background-color' property in CSS and hexadecimal color values, which are approximated for each box when the artist opens a digital image of the original Albers painting in Photoshop and uses the Eye Dropper tool to find a numerical value for each color in the image. This, of course, simplifies the geometries of Albers' original paintings, which had more nuanced and varied color values across the less-than 'perfectly' shaped rectangular planes.

## 1.2. Stitching Phase

After coding for 5-10 minutes, the artist moves to the sewing machine side of the performance space. Here, she lifts her skirt onto the sewing table and studies the screen containing the HTML and CSS. She then embroiders sections of the code into her skirt by moving the fabric manually under the machine's needle to

draw the text. While mostly legible, this text becomes rather 'messy' because of the imprecision of the manual process. The code that is typed in a digital font face on the screen is written in scrolling cursive on the skirt. As she stitches, the text of the code traces around and around the skirt, moving from the hem upwards. Three colors of thread are used during the performance: orange, black and blue. These mark the three distinct movements in *Skirting Color // Stitching Code*, which reference Alison Knowles's 1965 *Color Music #2*.

## *2. COLOR AS PRACTICE*

In his text *Interaction of Color*, Albers (1963) begins by telling the reader (the student) that color is deceptive, relative and unstable and that color cannot be counted upon to be any one thing or to present itself according to its label or name. Color cannot be accurately remembered or pictured in the mind's eye and it is highly susceptible to the influence of its neighbors. Albers emphasizes practice over theory, placing the act of *using* color at the center of his work and teaching. In 1950, he began his *Homage to the Square* series investigating the square format in a variety of media, including painting, drawing, print and tapestry. The Homage to the Square format was used to explore "...the subjective experience of color-the effects that adjacent colors have on one another..." (Homage to the Square: With Rays). He continued this series for 25 years, making over a thousand versions.

As an artist and educator, Albers' liberal philosophy of teaching was mirrored in his philosophy of color. On pedagogy, he said, "...the teacher actually is right and always will gain confidence when he admits that he does not know, that he cannot decide, and, as it often is with color, that he is unable to make a choice or to give advice" (Albers 1963). This philosophy runs through the methods of teaching of the *Skirting Color // Stitching Code* artist. Although she teaches web art and design and has substituted colored paper with colored pixels, the use of experimental matching and pairing of designs, shapes and strategies is inherent to how she encourages students to approach their work. She asks her students to apply code that they have just learned to create <divs>, arrange elements on a page and build whimsical patterns of color and shape on a series of hand-coded documents. Experimentation, even while nervous or uneasy with the techniques and problems at hand, is encouraged as key to investigating wide-ranging possibilities. Albers underscores the attitude shift or behaviors that develop by practicing color theory in this way, stating, "On the whole, variants demonstrate, besides a sincere attitude, a healthy belief that there is no final solution in form; thus form demands unending performance and invites constant reconsideration —visually as well as verbally" (Albers 1963). This sits counter to the way we are often taught about color as preschool children, notably that one color is "red", another is "yellow" and a third is "blue". This simplistic way of learning and talking about color does not reflect the nuance of color in practice. Color viewed and depicted by a trained eye can slough off encumbrances of language as as bias for a more objective depiction of the world. Just as we move from kindergarten flash cards to smearing and mixing colors at the art table, we can experiment with code and web media just as freely if, at the foundational level, we remove the constraints of templates and content management systems and replace them with the practice of delving into blank text documents and creating worlds from scratch. Albers comments on the inability to diagram color in the way that Music

or Dance use notations that will later be read, followed and imitated by a future performer. He states that any "… color composition naturally defies such diagrammatic registration as notation in music and choreography in dance" (Albers 1963). Notating color is not possible as color cannot be reproduced or accurately described through language or symbology, rather, it is only visible through presentation and a live context. In contrast to this, web code uses language and symbols to represent colors and constrain the choices that a programmer can make when displaying objects on the screen. Hexadecimal color values must be used to notate color and reproduce, or approximate, the desired shade. This contradiction places the reproduction of Albers' work, as it occurs in *Skirting Color // Stitching Code*, at odds with Albers' intent for colors to be seen as they are in their original context. If that context is the screen-based representation of coded hexadecimal values—as is the case with so many colors we view in a contemporary screen-absorbed culture—then does the color as viewed on the screen become its new original context?

## 3. CONCLUSIONS: CODE AND PERFORMANCE

In *Skirting Color // Stitching Code*, the score and instructions are quite simple and don't require complex notation. Like Alison Knowles' Fluxus scores, they are left vague and open to interpretation by any performer.

In *Skirting Color // Stitching Code*, the performer writes HTML and CSS into a text editor and it is updated in real-time in the browser. The text of the code and the resulting color study website are projected onto the screens as the performer turns to stitch the text of the HTML and CSS onto her skirt. What was at first ephemeral, fleeting, and open to being changed and updated at any moments now made permanent, stitched into the fibers of her garment. The code that is stitched, however, is not complete. It cannot be copied and used to reproduce the webpages that are projected in an iteration of this performance. These are only snippets of live moments, frozen in time as excerpts until the performer stands again to change the code, updating the colors and images viewed through the projection.

The permanence of the thread on fabric and the femininity of the performer's costume underline the feminine origins of The Computer and The Programmer as professions once staffed predominantly by women.

> **As Katherine Hayles underscore in the title of her 2005 book, My Mother was a Computer, women often worked as 'Computers,' or people making detailed calculations before machines could do this type of work. As industrial jobs became scarcer, more men moved into computer programming. The stereotype of the programmer-as-female thus moved sharply toward the stereotype of the programmer-as-male. (Bradbury 2016)**

*Skirting Color // Stitching Code* also sits within the language of live coding. McLean and Sicchio (2014) describe live coding that is performed alongside of dance in relation to their collaboration *Sound Choreography <> Body Code*, as "… a loop of continuous influence from the body, into the code, into the sound, into the choreography and back into the code". In *Skirting Color // Stitching Code*, as it was performed in the seven-hour durational {Re}Happening at Black Mountain College, this loop of continuous influence was apparent as it resonated with

audiences in its reflection of cyclical female labor. This became a performance of perpetual work, from domestic labor (sewing) to corporate labor (coding) that seemed unending. Several audience members, all female, approached the artist to comment on the idea that 'women's work is never done'. While this was not the intent of the performance as it was planned, it became a clear undercurrent once it was live.

How does the act of coding color <divs> in HTML and CSS sit within or against Albers's pre-web theories of cut paper/paint applied to a neutral grey background? As shown in in Fig. 1 below, Albers's color theory, code in the browser, and *Skirting Color // Stitching Code*, each contain different but overlapping qualities that leave room for comparison and consideration by the audience during the durational performance.

Table 1
Comparison table of the qualities in *Skirting Color // Stitching Code*, Bradbury 2017.

| *Color According to Albers* | *Code in the Browser* | *Skirting Color // Stitching Code* |
|---|---|---|
| Subjective | Objective | Subject-Object relationship between performer and audience |
| Context-based, interpreted by viewer | Interpreted by browser, presented in screen-based context | Closed system of the performance creates context for the color |
| Not easy to describe using words; words are imprecise/inaccurate | Words are the medium and accuracy is essential for functionality | Words as instructions create a loose frame-work for action |
| Amount/quantity is important to perception | Quantity of code does not have a direct relation-ship to the end result in the browser | Quantity of action by performer may be viewed by periodical audience for any length of time while performance is ongoing |
| Systematic | Logical | Systematic, Logical with room for error |
| Error as serendipity | Error as glitch | Error as serendipity and glitch |

Geoff Cox (2015) and others have evaluated the performance apparatus in live-coding contexts, in which a material subject/object relationship is established between the hardware and software and the performer/programmer. Cox (2015) states that, "...code both performs and is performed through the practice of coding in real-time. Both mutually create and define each other, inter-acting in indeterminate and uncertain ways." The code, therefore, defines the outcome of the performance while it is simultaneously changed and edited by the per-former/programmer. In *Skirting Color // Stitching Code*, this is true in terms of the kinds of shapes and colors that are projected as color study images. When laying out the <divs> and hexadecimal colors in the browser in this performance, the artist does not always make the "correct" choices immediately; the code is edited in a trial-and-error process until the shapes and ratios of color approximate Albers' original designs. The artist works across several software environments—Brackets (text-editing software), Photoshop (to 'eye-drop' the hexadecimal color

values), Finder on Mac (to navigate through the root folder of the website and the Albers image files), and the Chrome browser (to display the outcome of the live code). After coding for 5-10 minutes, the artist switches to stitching, leaving the code in an unfinished state to sew the text onto the skirt. The text, though stitched with a sewing machine, still retains a 'hand-sewn' quality because the fabric is manually moved under the needle. Its legibility is variable and it is representative of only the sections of code that can be completed in 5-10 minutes. The skirt never becomes a reliable document from which to read and copy the HTML and CSS. The color study websites, therefore, cannot be re-created from the skirt. This highlights the fleeting quality of the moment of performance and the context built around it as necessary to be experienced in order for the full-picture and contextual reading of the piece (its movement, code, and color) to be read and realized by both the performer and the audience.

**Acknowledgements.** This work was developed and funded by the Black Mountain College {Re}HAPPENING Festival, 2017 and by the University of North Carolina Asheville Department of New Media.

## *REFERENCES*

**Albers, Josef.** *Interaction of Color*. Unabridged text and selected plates. Revised Edition. New Haven and London: Yale University Press, 1975, 1963.

**Bradbury, Victoria.** "Haway the Lasses! A Re-write of the Hack Model". *Armseye Magazine*, Issue 2. January 2016. Accessed February 8, 2017. http://www.armseyeart.com

**Cox, Geoff.** "What does Live Coding Know?" *International Conference on Live Coding*, University of Leeds, 14 July 2015. Accessed July 16, 2016. https://zenodo.org/record/19329

**"Homage to the Square: With Rays".** Met Museum. Accessed February 8, 2017. http://www.metmuseum.org/toah/works-of-art/59.160/

**"Josef and Anni Albers Foundation".** Accessed February 8, 2017. http://www.albersfoundation.org/teaching/anni-albers/introduction/

**Knowles, Alison.** *By Alison Knowles*, New York: A Great Bear Pamphlet. 1965. Accessed February 8, 2017. http://artype.de/Sammlung/pdf/knowles_by.pdf

**McLean, Alex and Kate Sicchio.** "Sound Choreography < > Body Code." *Proceedings of xCoAx, The Second Conference on Computation, Communication, Aesthetics and X*: 355-362, 2014. Accessed February 8, 2017. https://www.academia.edu/12765945/Sound_Choreography_Body_Code

**Puleo, Risa.** "The Linguistic Overlap of Color Theory and Racism". Hyperallergic. December 14, 2016. Accessed February 8, 2017. http://hyperallergic.com/345021/the-linguistic-overlap-of-color-theory-and-racism/