

Mapping Emotion: Lia Cook's Scientific Approach to the Handmade | California College of the Arts



The Berkeley studio of [Textiles](#) faculty member [Lia Cook](#) is furnished with every tool a textile artist could want, from the cutting-edge to the antique. A Mac computer displaying [MRI images](#) rests five feet away from a two-story [Jacquard loom](#) manufactured in 1900, and in between are a dozen spools of vivid pink, red, and yellow thread.

In order to create her woven pieces, whose dimensions range from eight inches to seven feet, Cook draws upon 40 years of professional experience in which she has developed a unique, hybrid workflow that incorporates the digital, the mechanized, and the handmade.

Textiles + Neuroscience Research

"When people see that my pictorial pieces are actually woven, it adds an important element to their experience of the work. Specifically it creates more intense relationships to the pieces," Cook explains. Recently she began a scientific study of this; it was inspired in part by witnessing people's reactions to her 2008 series [Faces & Mazes](#), cotton textiles depicting close-ups of dolls' and children's faces.

"People became very emotional, especially about the dolls."

In 2010 she spent a week working with [Dr. Greg Siegle at the University of Pittsburgh](#)

using the tools of the neuroscience laboratory: [functional magnetic resonance imaging \(fMRI\)](#) and [electroencephalography \(EEG\)](#), both methods of measuring and monitoring brain activity; eye tracking, to monitor what parts of an image people are looking at; and pupil dilation, a way of measuring a person's level of emotional response to whatever they are seeing.

"We showed people a photograph of a face and an actual weaving of the same face, and found that the photos generated more visual processing, whereas there was more body awareness and low-level emotional reactivity to the weaving."

Fiber Tracks in the Brain

Cook is also highly interested in the structural imaging of the brain, specifically the neural connections, called "fiber tracks," that connect one part of the brain to another. There is a strong affinity between these organic, wild structures that resemble spiderwebs and her medium. "When I first saw these brain imaging patterns, I was blown away at how much they looked like weavings."

She incorporated the actual interlacing connections in her own brain into her latest series of works, layering the brain fiber patterns in bright colors on top of black-and-white portraits.

During her last touring exhibition, Cook set up informal behavioral study booths at each venue. The participants answered a series of questions and were asked to do some free-form writing about their impressions of the works. She noted that they frequently used words such as "curiosity" and "tenderness."

Now, having compiled more than 800 questionnaires, Cook is collaborating with neuroscientists at [Stanford University](#) to analyze the data. "It's not easy for an artist to segue into this field of research and find support and funding. But once I have the results, there's a lot of ways I can go from here."

Pushing the Medium to Its Limits

Modern equipment and hand weaving are integral parts of Cook's creative process, but it is her exhaustive knowledge of the craft that keeps her work together -- literally.

"You have to know what to do technically, or everything falls apart! With one piece, for example, I experimented with weaving pixels rather than the normal kinds of structures that are known to hold together as a substantial cloth when removed from the loom. It really pushes the capabilities of the medium. You can't do that type of work in a factory;

it would break the machinery."

Her Jacquard loom with a 400 thread count is maneuvered via a [punch-card system](#), like a Barbary Coast-era player piano. The patterns for the cards are created on a computer, but Cook controls every movement by hand.

She also owns a pneumatic loom manufactured in the early 2000s, which has micro air cylinders operating 2,640 threads independently. Although information is sent to the loom by computer, Cook still controls the process manually as she goes, selecting colors and making spontaneous adjustments.

The different types of weave construction really matter, since the method by which a piece is translated has a huge effect on its eventual look—and the resultant emotion it will elicit. Faces woven with different types of interlacing and patterning will yield different impressions: calm, angry, sad, euphoric.

Further Neuroscience Research

Recently Cook has begun working with [Schiller Laboratory of Affective Neuroscience](#) at [Mount Sinai Hospital in New York](#). The lab conducts fear studies by shocking subjects with low-level electrical impulses. When the subjects saw photographs of her work, as well as the actual woven pieces, she reports, "Once the subject had been shocked and reacted fearfully, it took a longer time for them to recover after looking at the woven image, whereas with the photograph the recovery time was less.

"These art projects open up the creative thinking of the people in the lab, too, and it's very exciting. Many of the scientists are amateur artists themselves."

A History of Handcraft at CCA

At the time Cook began working with textiles, there was a huge interest in design and craft in the Bay Area. She began teaching at CCA several years after receiving her MA from [UC Berkeley](#) in 1973. "Although at the time CCA(C) was mostly visual arts, craft was never isolated out. I never felt that there was any kind of hierarchy." Over the years she has held a variety of roles at the school, including chair of the Textiles Program.

These days she is a graduate advisor and teaches two or three courses per year.

Cook has consistently encouraged CCA to stay on the forefront of technology within the textiles field. "There's been a gradual introduction of digital elements. I convinced the college to purchase a pneumatic digital loom from Norway in 1999, an original model of

the one I use. With digital looms you can achieve much more complex patterning."

She also encourages as broad a definition of "textiles" as possible. "We study the history of textiles as one aspect of cultural connections worldwide. It's an incredible history, and what's wonderful is that this is not just taught as one course, but embedded throughout the curriculum."

The Return of the Handmade

Now in her fourth decade of teaching, Cook is seeing a resurgence of student interest in the handmade. "They've grown up with no one at home making anything by hand. It's such an important part of the art process, and the human process. In my weaving courses, they definitely learn the value of the handmade. It's amazing to see people weave for the first time!"

There are innumerable ways to apply textiles knowledge, and many possible tracks through the program. "This mix of old and new technology is very interesting and productive, and students are getting very creative. Designing fashion, Internet fundraising, online craft sales . . . there are so many ways to make a living and get your art out there."

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Lia Cook is currently in a group show at the [Berkeley Art Center](#). It is open through November 16, 2013, and includes several other CCA faculty and alumni.

Cook will be represented in two exhibitions opening on September 20, one at the [Hangzhou Triennial of Fiber Art, China](#) and the other at the [China National Silk Museum in Hangzhou](#).

In 2012 Cook was awarded a [Smithsonian Artist Research Fellowship](#) to research how artists use tactile qualities in images to represent varied emotions.

In 2012 Cook was featured on the PBS series [Craft in America: Crossroads](#).