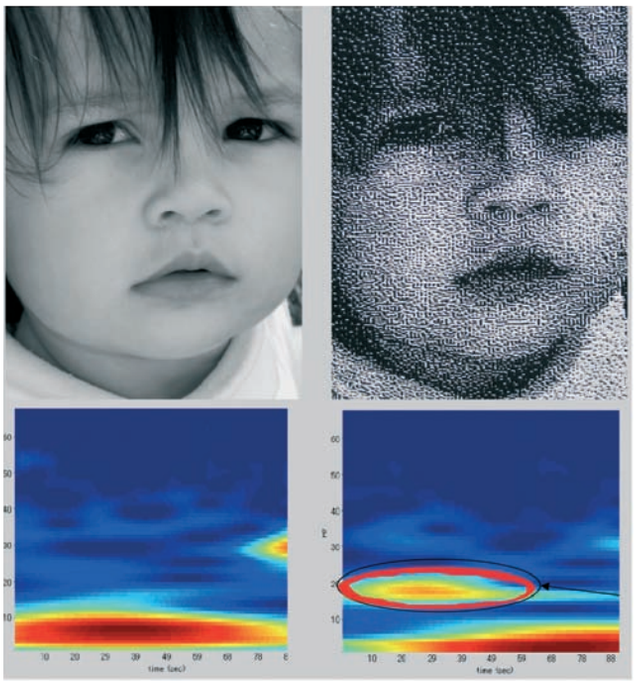
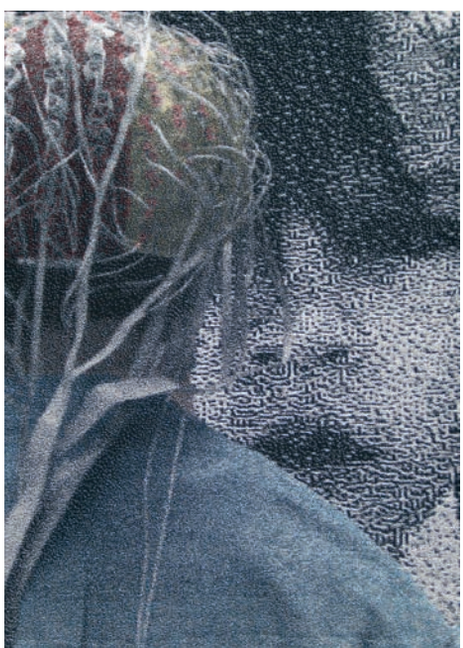
# AN INVESTIGATION: WOVEN FACES AND

Lia Cook



**Comparing the perception of a photo versus a woven image using EEG**



**Above: EEG test person touching larger image of face: Artwork "Young Girl"**

**Left: "Facing Maze", woven artwork based on EEG process (see cover image!)**

My exhibition Faces and Mazes has been traveling in the United States and Canada for the last year and a half (see TF 2/10, p. 19). At each venue I was struck by the different emotional reactions to confronting these large woven faces that look photographic at a distance but dissolve into maze patterns up close and finally into visibly intersecting threads. One aspect of the emotional response seemed to be the desire to touch that the experience of engaging with these works engendered. At this point, my long term interest in neuroscience and the brain came together in the in a collaboration with neuroscience researchers to look at the emotional response to the faces. I was invited as an artist-in-residence to University of Pittsburgh TREND Program[1)] to use their lab, facilities and expertise to devise and carry out experiments in an attempt to map the emotional response to these works in the brain. My original hypothesis was that the woven interpretation of the face would add something different to the emotional response compared to a flat photographic print. I wanted to explore the nature of people's emotional connection to woven faces. I thought that the material and structural aspects of the textile, the physical evidence of the hand and the memories associated with these tactile experiences might intensify the reactions. Something about the textile engenders embodied emotional response beyond that of the 2-D photo.

Doing preliminary but scientifically based single subject studies, we were able to map the response in the brain showing areas of touch and emotion in response to viewing the artwork. We tried many different approaches using Electroencephalography (EEG), Pupil Studies, EyeTracking and Funchional magnetic resonane imaging (fMRI). The subjects did a variety of tasks. In one example they compared the actual woven image with a photograph of the woven image with the, the original image itself. We could see the different responses in the brain in visual images from fMRI data and in records of electrical brain activity from EEG and found some evidence of my original idea that the woven image evoked a different kind and/or intensity of emotional response. Other tasks as well as interviews with the subjects afterword expanded my understanding of the emotional connection to woven faces. I have included some images documenting the process.

The concept of the TREND residency, directed by Greg Siegle, PhD, University of Pittsburgh School of Medicine, is that inviting artists into the lab to connect with scientific researchers has a positive effect on both the scientists and the artists. The artist may encourage the scientist to think in new creative ways and the artist can learn the tools of the scientist to develop their artistic ideas or to look at their artwork in new ways. My experience of the residency is that I have a new understanding and appreciation for the kind of creative process that goes into scientific research. In addition, the intense connections with researchers gave me new energy and new insights into my work. When I started the project I considered it "art research" and did not know exactly where it would lead me, whether the result would be video documentation or actual woven artwork. I was surprised to be able both to learn more about the answers to my questions and also to begin to create new work inspired by the experience.

One unexpected visual result involved the experimental use of Diffusion Spectrum Imaging (DSI) in which the fibers of the brain connections that run through the white matter of the brain can be imaged using MRI technology. Upon seeing an early example, I was struck by the similarity of these interlacing fibers to textile constructions. I underwent this imaging process using my own brain as example. Using software from MGH/Harvard, Biomedical Imaging Lab[2)], I was able to manipulate the images of these fibers, to zoom in

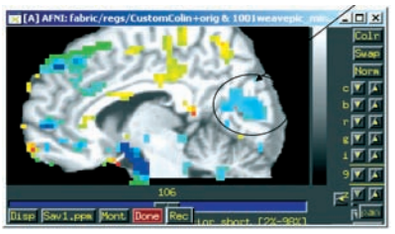
and rotate them. These images became a starting point for my latest woven work that combines the woven face with the fiber of the interior brain as in the example "Tracts Past".

Although these are initial responses and I expect to continue to draw inspiration from this research for my work, I am also excited to explore new, different projects and possible neuroscience based collaborations. I am fascinated with the territory in which science and art can meet. ■

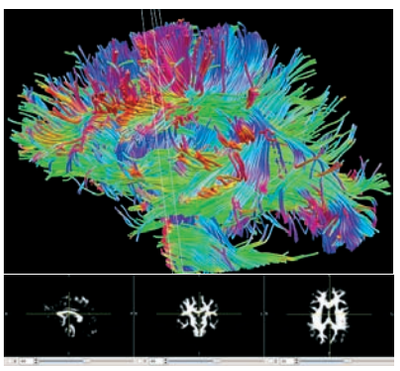
**Notes:**

1) TREND = Transdisciplinary Research, in Emotion, Neuroscience and Development; group of the Department of Psychatry at the School of Medicine, University of Pittsburgh

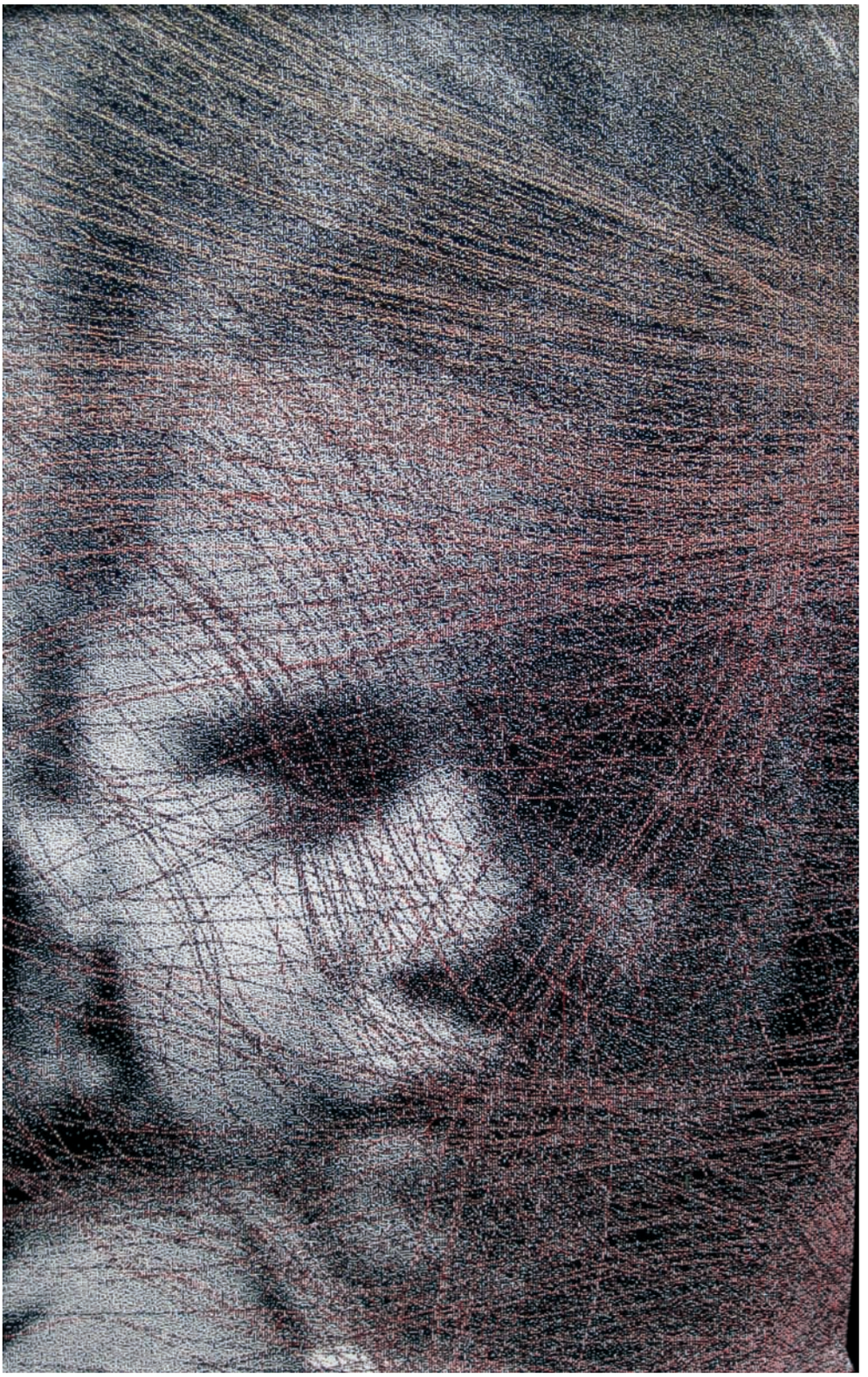
2) Software "TrackVis", Ruopeng Wang, Van J. Wedeen, TrackVis.org, Martinos Center for Biomedical Imaging, Massachusetts General Hospital, Harvard


**Comparing photo versus woven image, parts of the activated brain become visible**



**Diffusion Spectrum Imaging (DSI) of image of brain from TractVis software, showing the connecting fibres running through the brain (see above and right)**



**Woven artwork 'Tracts Past', made after a photo of the artist as a child, covered with DSI image**