

Aneta Genova

genovaa@newschool.edu

Louisa Campbell

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### Interview with Jeff Crouse

Jeff Crouse spiked my interest because of his diverse interest in technology as it connects to a storytelling experience, and his intense background in creating software, web applications, and installations. He approaches his work with a sense of humor and removes the preciousness of technology through satire. His work has been shown at The Sundance Film Festival, and featured in the Berkeley Art Museum Net Art. He has received grants from Rhizome and Turbulence, and has completed residencies at Eyebeam and Minneapolis Art on Wheels. He has pieces on permanent display in Dayton, Ohio, and Beirut, Lebanon.

For this interview I was particularly interested in the *Nike Hyperfeel* interactive experience installation during fashion week this fall 2013. This was a participatory experience revolving around the launch of the *Nike Hyperfeel* shoe, and the feet being sensory perceptors. The concept for this installation was driven by Jeff Crouse and Aramique. Lars Berg joined the team to take the back-end structure, built by Jeff and created a generative visual world in open frameworks and Gary Gunn joined in to take the data and build a generative soundscape.

The “exhibition” was stationed in a temporary tent in the West Village and allowed visitors to go through a maze of varied surfaces positioned in three different rooms. Each participant was equipped with an EEG brainwave sensor, which was connected to a mobile device, worn on the shoulder, and was asked to take off his/her shoes. As visitors paced through the range of environments: wet stones, warm sand and grass the EEG brainwave sensors tracked their neurological responses to the environmental stimuli and took that data to build an exciting audio-visual world. Custom created sounds were triggered on a mobile app, created by Jeff Crouse developed, which let people compose their own soundscape with their neurological responses as they walk through the experience. At the end of the walk each guest’s brainwave data was collected and visualized as a collective art piece on a large circular screen structure,

hanging from the wall. Each visitor's journey added a new layer of colorful linear topography to create an ever-evolving mind-sensory landscape. Each new journey was added to the outer edge of the structure, while the oldest voyage neared the middle.

I personally walked through the low-lit maze barefoot and did feel my feet turn into a sensory receptor. What was even more exciting was the experience of composing a soundscape with my own mind, and seeing my own visual representation of the full experience as part of a live generative artwork. By being aware of the surface I walked on and seeing the final visualization I felt more connected to my own experience, and felt closer to everyone else who experienced it before me!

I caught up with Jeff Crouse outside the tents.

Aneta Genova: How did you come up with the idea for this installation?

Jeff Crouse: Initially there were a few ideas for this installation. One of them had to do with scanning people's feet as they walked through the rooms, and visualizing that to form a large installation. Another one was to do more of a sound experience. The third one was to acquire consumer-grade EEG sets for about a \$100 each and visualize the brainwaves as people walk through a labyrinth. Aramique was the one who wanted to work with these headsets for a while, so he proposed their use. The final output needed to be an expression of the feet being the sensory receptor. We wanted to highlight the features of this particular shoe, which was to put you in touch with the ground and make you feel everything.

AG: How long did this whole project take to make?

JC: We had a very short timeline for this project. We had less than a month from concept to finished product. We were a total of five people on the team: me and Aramique, a sound designer, front-end graphics designer and a motion designer. We had to do a lot of hardware testing off site and honestly we would have liked to get through more prototypes and more user-testing at the actual space, but we didn't have access to it until about six hours before opening of the installation. We didn't even have a chance to walk through it ourselves. In all honesty we did not do any user testing at the actual space, and the first time we saw it working was at the very first press preview! We just had our fingers crossed that it would all work out. We are in day four of the installation and we do any adjustments during lunch break or through the night.

AG: What was the technology you used for this project?

JC: You can split the project in four different stages. One of them uses the EEG headset, made by a company called NeuroSky. It is basically the same headset you would see in a hospital, which outputs the standard EEG readings you would get in a hospital, and you also get these two distilled values of attention and meditation. And all of that without the wires stuck to your head. That gave us a great measureable quantity as people walked through the labyrinth. It addressed the question: How does walking through the sand affect your relaxation or acute attention, as opposed to wet stones or grass surface?

The next step was to record these readings so we could do something with them later. For that I built a simple custom iPhone app, which lets you record the readings as they come through the headset. We put that on an iPod touch, which also generated a live track, based on those readings. The result was: the more relaxed you were, the smoother and calmer the sounds were, and as you got less meditative and more focused, the sounds became more dynamic.

For part three we had a simple no GS server which receives all the data and deals with it and finally there was the projection side of it, which took all the readings and created a swirling visualization, a radial graph of the attention and meditation as a person walked through the different surfaces.

AG: What was the software that you used for this project?

JC: The recording application is an Objective-C iPod application. The company that makes the headsets has an API that makes it very easy to make software around it. The visualization and the front end was all done using open frameworks. And we used web sockets to communicate between the different parts.

AG: Did you control in any way the final visualization or was it purely personal expression of each individual journey?

JC: We just created designs for all of the different visualization states, so when a person finishes their trip, their data gets saved and gets pushed to the visualization engine. We had many discussions about how we could visualize something as intangible as a brainwave and finally settled on something that looks like a portal with successive rings. The contours of the rings that formed the portal were created by the data, collected from each individual on the iPod.

AG: How did you pick the color palette for this visualization?

JC: Aramique and I had a general idea of the concept for this project. We went through a lot of different iterations, and had a great front-end programmer named Lars Berg, who did a lot of the graphics programming. He did a lot of experimentation with animation methods and how the data could map itself into the circle.

Specifically for the colors we originally thought we wanted to base them on the type of the data we were receiving, and have a randomly generated color palette. At the end we needed the colors to be distinct enough where people could tell the difference between their trip and the people before them, so we went ahead with a predefined color palette, based on popular Nike colors.

AG: Tell me about the visualization shapes.

JC: The shapes as they come in the very beginning they are animated as solid bars, that represent all the different readings of data. That is your meditation levels and your attention levels. As you move further they start to break up, they become noisier, they start to look like particles in a swirling mess. Our approach to that was to think of it as a reflection of the impermanence of a thought. You have a thought. It sticks around for a second, and then it's gone. Likewise, this brain activity, which we were recording and visualizing, we wanted it to be initially solid and opaque and then as time goes on and it moves into the distance it breaks up a little bit.

AG: Was there a tangible takeaway from the whole experience for the users?

JC: Simultaneously, while we were projecting it, we also recorded exactly what got sent out to the screen and created little photo strips, which were emailed to the users, after they got out of the labyrinth. That was a reminder of their journey and experience.

AG: What was your personal takeaway from this project?

JC: We worked as a team to make this installation happen. It all came together thanks to the varied talents of my teammates. By sending the user through the labyrinth and recording all these experiences with the headset I'd like to think that my role was simply recording the reactions as users went through the whole experience, and show them what they went through in a way that

you don't often get to see. You don't normally see your brainwaves or your brain activity visualized.

AG: You don't normally work in fashion and technology, but for this particular project you worked with a footwear company. From your perspective what is the future of fashion and technology, and what is interesting to you?

JC: Some of my favorite projects in that area have to do with either a critique on the technology or society such as accessories, which help you evade surveillance. I like Adam Harvey and his *Stealth Wear*, which includes hoodies and, scarves and umbrellas which obstruct overhead thermal surveillance from drones." Also the CV Dazzle camouflage make up that throws off facial detection software. Projects that are more interesting to me are those critical ones, contrary to just using the technology as intended.