The Transdisciplinary Research in Emotion, Neuroscience, and Development (TREND) 
Artist in Residence Series

This series brings an artist and neuroscientists together for 1-4 days each year to exchange perspectives, methods for thinking about emotion and visual representation, and to apply the tools of neuroscience to understanding or advancing the artist's vision.

Goals
The series has the following goals geared towards pushing the boundaries of both art and science:

1) Artists regularly trade in the currency of emotion, but are rarely exposed to the newest thinking on emotion from the scientific community. We hope the perspective of science can inform their art. Thus we work to expose our artists to the most cutting edge neuroscience associated with emotion, mood, and mood disorders.

2) Neuroscientists are often entrenched in a dry data-centered way of thinking about emotion which can, unless it is regularly infused by perspectives from the heart of passion, become far from the phenomenon they are studying. Thus, we work to expose our students, faculty, and staff to a perspective on emotion by an artist whose livelihood depends on understanding and evoking emotion but who may not have come by their understanding from the same perspective that we do.

3) Both science and art depend on being able to represent information in a visually compelling way. Artists and scientists receive very different training in how to pursue this goal. We hope this series will help to cross-pollinate traditions for representing information visually.

4) The tools of neuroscience are uniquely suited to helping to understand processes and mechanisms associated with the perception of art. Towards this end, we provide opportunities for the artist to examine brain processes that unfold as people interact with their art. As scientists, we have found that these collaborations push us to use our technologies in ways we had not previously considered.

The Experience
Artist-in-residence visits generally last 1-4 days. Essential activities include:

- Formal and informal meetings with scientists at the University of Pittsburgh and Carnegie Mellon whose work is most closely matched to the topics or goals of the artist.
- Time spent clarifying goals and potential for using neuroscience and associated assessment technologies to address the artist’s questions (often begins before the actual visit).
- Assess brain function as the artist and TREND members interact with the artist’s work using technologies such as eye-tracking, psychophysiological assessment (e.g., pupil dilation, heart rate), event-related potentials, and functional magnetic resonance imaging (fMRI).
- Working with faculty and students to analyze collected data in light of the artist’s questions.
- A TREND lecture by the artist describing their art and process, particularly as might be informative for neuroscientists. If we have any results from our assessments at the time of the lecture, this is a great time to present them.

Series Facilitator
The TREND Artist in Residence series is facilitated by Greg Siegle, Ph.D an Associate Professor of Psychiatry at the University of Pittsburgh, School of Medicine where he directs the Program in Cognitive Affective Neuroscience (PICAN). His primary research involves understanding brain processes of recovery from depression and spans the disciplines of clinical psychology, neuroscience, and artificial intelligence. He is also a computer graphics and glass artist, published poet, and performing musician.

Contact: Artists wishing to be considered for this program and media should contact Dr. Greg Siegle at gsiegle@pitt.edu.
TREND ARTISTS

2007-2008 - Deborah Aschheim
http://www.deborahaschheim.com/
Medium: Sculptural installations and drawings
Topic: Neural mechanisms of personal narratives and worry

Deborah was interested in how her brain processed her worries. So she made a network of her worries (right) and followed her thoughts with a mouse during functional magnetic resonance imaging (fMRI). Brain regions associated with emotion such as the amygdala were more active when she was worrying than when she tried to control her emotions (left) suggesting that emotional aspects of her worry were under some voluntary control.

2008-2009 - Connie Cantor
http://www.conniecantor.com/
Medium: Paintings
Topic: Emotional memories

Connie was interested in how she reacted to her pictures of emotionally salient moments in her life. So she viewed a self-portrait while she rated her emotion from sad to happy with a mouse while we tracked her gaze. The plot below shows her eye-gaze colored by her emotion. She spent the majority of the time looking at the eyes, and her emotion varied from neutral when she looked at the top of the eyes to sad when she looked towards the bottom of the eyes.

2009-2010 – Lia Cook
http://www.liacook.com/
Medium: Weaving
Topic: Weaving and the brain

As a weaver, Lia was interested in the “weavings” of white matter in the brain. Using diffusion spectrum imaging, Lia went home with images of her own white-matter tractography which she is currently which she is using as resource for a new work with woven faces.

Lia was also interested in the nature of people’s emotional connection to woven interpretations of faces. Using electroencephalography (EEG) we showed greater “beta power”, associated with active attention in the first 30 seconds of exposure to her weavings compared to a corresponding photo.
2010-2011 – Richard Claraval

http://richardclaraval.com/

Media: charcoal (drawing)
styrofoam (sculpture)

Topic: Emotions during the creative process

Rick wore a newly available ambulatory EEG rig to capture his brainwaves while he was drawing and sculpting. We showed that as he drew about love he felt positive. When he drew about war it looked like he was ruminating, but he became more positive over time as he switched from thinking about war itself to thinking about the art he was making about it.

When he was sculpting, Rick’s brain looked similar to when someone is calm and relaxed, and also integrating features of the sculpture into a coherent whole. When he was hesitating, both of these were reduced, suggesting he had stepped out of the “zone”.

2012-2013 – Holly Hanessian

http://www.hollyhanessian.com/

Media: Clay

Topic: Touch in Real Time:
Touch a social participatory activity

Holly measured people’s EEG while they held her hand with clay in between their hands. While the EEG data captured their brain activity associated, the clay captured the social bond they were creating.

From 2014-2016 the Artist in Residence Program morphed into an all-out science-outreach program, setting up a brain measurement lab in the ScareHouse Basement, an extreme haunted house. We worked with Margee Kerr, the Basement’s director, to measure patron’s brains before and after they participated in the Basement Experience to understand how the experience of visiting a haunted house affected people. We also measured actors as they transitioned from their every-day heads to their horrific characters. This work has been submitted for publication.