Undergraduate Research Symposium May 19, 2017 Mary Gates Hall

Online Proceedings

Poster Session 1

Commons West, Easel 39

11:00 AM to 1:00 PM

An Exploration of Self-Transcendence through Solo-Travel

Jason Chen, Senior, Human Ctr Des & Engr: Human-Computer Int
Leena Choi, Senior, Human Ctr Des & Engr: Human-Computer Int
Aaron Justin (Aaron) Joya, Senior, Human Ctr Des & Engr: Human-Computer Int
Shin Young (Lucia) Choi, Senior, Human Ctr Des & Engr: Human-Computer Int
Mentor: Mania Orand, HCDE, College of Engineering

Self-Transcendence (ST) is closely related to spirituality and has gained increasing popularity among populations such as Americans. ST refers to a state where an individual experiences meaning and communion from surpassing their self-ego and boundary. Strong evidence of ST's positive effect on an individual's life has been found in literature across disciplines. Despite its importance and popularity, research in this topic has remained rather silent in the design community. In this paper, we used the research through design methodology and constructed a framework (collect, filter, analyze) to help understand ST experience through the study of solo travelers. Solo travelers were found to have ample opportunities to reflect, especially outside of themselves, and thus studying solo travelers provided us with a platform to understand ST experiences.

Poster Session 2

Commons West, Easel 1

1:00 PM to 2:30 PM

Exploring the Flow of #BlackLivesMatter Conversations in Response to Shooting Events Using a Shared Audience Network

Leo G (Leo) Stewart, Senior, Human Ctr Des & Engr: Human-Computer Int, Computer Science
Mary Gates Scholar, UW Honors Program
Mentor: Kate Starbird, Human Centered Design & Engineering

This research examines the politicized conversation around officer-involved shootings. Drawing on a dataset of shooting-related tweets containing #blacklivesmatter, #bluelivesmatter or #alllivesmatter, we construct a network graph of Twitter users who participated in this conversation, utilizing a measure of shared audience to connect and cluster accounts into communities. We then employed mixed-methods, including visual and qualitative analysis, to explore the communities, influencers, and information flows of this discourse. Our findings identify and describe several distinct clusters of accounts—both left- and right-leaning clusters, including a cluster of alt-right media—and show how users within the latter cluster were significant in shaping the flow of discourse. We situate our findings within the broader context of competing political narratives leading up to the 2016 presidential election. This work provides insight into the underlying structure of politicized discourse on Twitter, and demonstrates the utility of a shared audience network relation for guiding interpretivist analysis of Twitter conversations.

Poster Session 2

Commons West, Easel 2

1:00 PM to 2:30 PM

The Spread of Misinformation Online during Crisis Events

Stephanie Ann Stanek, Senior, Human Centered Design & Engineering
Mary Gates Scholar
Mentor: Kate Starbird, Human Centered Design & Engineering

Misinformation is a large component of social media. Sometimes, misinformation increases during times of uncertainty and panic, such as during crisis events. By collecting Twitter data from events such as the Boston Marathon Bombings, Paris Terror Attacks, and a WestJet Airlines Hijacking, it became apparent that thousands of individuals turn to social media as a real-time news source. First, data from public Twitter profiles was collected during major crisis events. After collecting the data, it was qualitatively coded based off a scheme pertaining to rumor acknowledgement. Next, individual Twitter users were contacted to participate in a semi-structured interview centered around their social media use habits. Through interviewing individuals who participated in the online conversation, data shows that there are emotional

feelings related to online rumoring. This research aims to identify different ways misinformation is handled on Twitter and explore a new idea, "emotional proximity." Implications of this research include a deeper understanding of how information travels online during crisis events, and the emotional influence social media has on individuals during drastic times.

POSTER SESSION 3

Commons West, Easel 39

2:30 PM to 4:00 PM

The Sound of Light: Transduction as a Way of Knowing

Nathan Christopher Mahr, Senior, Comparative History of Ideas

Mary Gates Scholar

Mentor: Tyler Fox, Human Centered Design & Engineering, College of Engineering, UW

Mentor: Phillip Thurtle, Comparative History of Ideas

Mentor: Rebecca Cummins, School of Art + Art History + Design

Mentor: Joel Ong, Department of Computational Arts

What would it mean to be able to hear light? How could this new perspective on light illuminate the fundamental intricacies of light energy? In Gilbert Simondon's musings on individuation he argues that the individual is never given in advance but is constantly coming into being through a process of interacting with its milieu and realizing potentials out of huge pool of possibilities. This work uses Simondon's focus on individuation and life as a never ending process of development to understand how energy exists through a similar process of change and potentials. Utilizing solar panels hacked into speakers, this installation seeks to employ the construction of a new relationship to light as a methodology for thinking about how energy emerges. The solar panels in the installation transduce light energy into electrical energy which is then fed into speakers for the participants to hear. Energy is most essentially a process of change, disruption and movement. It demonstrates to us the myriad of potentials which lie within and between us and energy. Through the use of transduction of energies this installation allows us to peer into the minutiae of our relationship with energy and begin to conceive of how we absorb, alter, collaborate and connect with it on a daily basis.

POSTER SESSION 4

Commons East, Easel 47

4:00 PM to 6:00 PM

Design Process Education: Using Descriptive Design Models to Enhance Engineering Design Education

Aaron Justin (Aaron) Joya, Senior, Human Ctr Des & Engr: Human-Computer Int

Maria A. Buan, Senior, Human Ctr Des & Engr: Human-Computer Int

Mentor: Cynthia Atman, Human Centered Design & Engineering, Center for Engineering Learning & Teaching

Mentor: Kathryn Shroyer, HCDE

Teaching undergraduate engineering students about the design process can be a difficult task yet is a critical part of an engineering education. A common method for design teaching involves the use of prescriptive design models, processes, and diagrams that indicate how one "should" do design. In this study we looked at student insights about design through the use of descriptive models, rather than prescriptive models. We question how engaging students in research data about design and descriptive models can be used as a teaching methodology that allow students to draw conclusions and further inform their design learning. In this study, 90 undergraduate engineering students from two different courses participate in a design activity. This activity engages students with descriptive visual data of first year and senior student design processes. Throughout the activity, students fill out a paper worksheet with 6 open response questions. A subset of 30 worksheets were randomly selected for preliminary analysis. Three researchers qualitatively coded the 6 questions for student insights in a grounded bottom up manner and a code book of student insights were developed. These codes were generated through iterative individual coding and group discussions between the three researchers. These qualitative codes have been applied in future work (outside the scope of this project) to the remainder of the student worksheets. The poster presentation displays the core results of student insight codes, preliminary conclusions, and our research process. However, this research is still an ongoing project. From this study we better understand how students can learn design from an activity that actively engages them in research data about design.