ACM Creativity and Cognition Conference 2017

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The overarching theme of this year's ACM Creativity and Cognition (ACM C+C) conference was "lifelong creativity, learning, and innovation" (http://cc.acm.org/2017). Taking place in Singapore in June 2017, this was the first time the conference was located in Asia. Now in its 11th year, C+C continued its tradition of bringing together researchers, practitioners, and educators from diverse disciplines for a jam-packed program focused on human creativity from multiple perspectives.

The open call for participation to artists, scientists, designers, and engineers described the intent of this year's conference as follows:

> *To understand human creativity in its many manifestations, to design new interactive techniques and tools to augment and amplify human creativity, and to use computational media technologies to explore new creative processes and artifacts in all human endeavors ranging from the arts to science, from design to education.*

To answer this call, interested participants submitted technical papers, artworks, workshop proposals, technology demonstrations, and visual pictorials. Mirroring the main conference theme, the curators of the art showcase proposed "Microbites of Innovation" as a provocation to artists to "probe and scrutinize the techno-utopian visions of a society empowered by sensing technologies, bio sequencing systems, and data clouds." These calls ultimately produced an exciting four-day program co-located at the National Gallery of Singapore and at Singapore's ArtScience Museum.

Hands-On Workshops

Three highly interactive full-day workshops preceded the conference:

- "Creative Coding for the Raspberry Pi using the Happy Brackets Platform,"
- "How Can Computers Support, Enrich, and Transform Collaborative Creativity?" and
- "Creative Artefacts and Digital Technology: Enriching Urban Societies through Interactive Experiences."

These workshops gave participants opportunities to not only engage in rigorous discussion and debate but also get hands-on experience with physical computing, rapid design exercises, and hacking outdoor prototypes for engaging urban citizens, respectively.

Running alongside the workshops, the Graduate Student Symposium, supported by the National Science Foundation, hosted 13 students presenting their ongoing research and practice, ranging from evaluating play experiences to understanding difficulties in video games, and from learning to sketch with intelligent tutoring systems to exploring natural decomposition as a creativity support tool.

Distinguished Keynotes

Three keynote speakers anchored the conference program by providing unique perspectives on creativity derived from industry, academic, and artistic practices. Kumiyo Nakakoji, a professor in the Design School at Kyoto University, opened the conference by examining fundamental features of interaction that support creativity and nurture the imagination.

Elizabeth Churchill, Director of User Experience at Google, helped kick off day two

of the conference with a presentation exploring how tools for "creatives" can enhance the design process. She also discussed the role of constraints and frameworks in helping spark creativity.

Award-winning graphic novelist Sonny Liew closed the conference with a fascinating talk exploring his own creative journey and the future of the comic industry and culture. Shortly after the conference, Liew won three Eisner Awards for his graphic novel, *The Art of Charlie Chan Hock Chye* (Pantheon, 2016). The Eisners are prestigious international awards given for creative achievement in comic books—the "Oscars" of the comic world. So conference attendees are fortunate in their ability to now brag about spending an intimate evening with such a notable guest!

Papers and Pictorials

The technical program featured 25 full papers, two short papers, and five pictorials. Over three days, the 32 papers were presented and discussed in a diverse range of thematically organized sessions tackling areas such as "crowd ideation," "sensing and visualizing experience," and "creativity in the (actual) wild."

The Best Paper award was presented to Nicholas Davis, Kunwar Yashraj Singh, Chih-Pin Hsiao, Brenda Lin, and Brian Magerko from Georgia Tech for their paper, "Creative Sense-Making: Quantifying Interaction Dynamics in Co-Creation." The paper identifies potentially useful new theories and methods for understanding and analyzing interaction dynamics during collaborative creative exercises, exploring these ideas within the distinct domains of imaginative group play and collaborative drawing tools. The selection committee described how this paper truly exemplifies the thoughtful integration of theory, tool development, and empirical studies, which is what C+C is all about.

The Creative Communication "Emma Candy" Award was presented to Miguel Escobar Varela and Daniel Sim Yong En for their artwork, "A Tangible Interface for Contemporary Wayang Kulit." The work lets participants control videos of Wayang performances (the oldest form of Indonesian theater) on an interactive screen.

FIGURE 1. Visitors to the Microbites exhibition play the Ruben Van De Ven's "Emotion Hero" video game, where the user scores points by following cues for facial expressions. (Photo CC-NC-ND ACM Creativity & Cognition on Flickr; used with permission.)
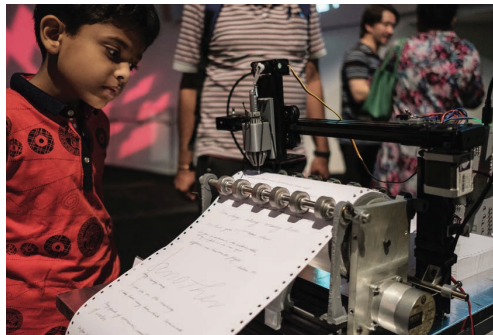

FIGURE 2. A young museum visitor examines Bill Hart's "An Autonomous Writing Machine" at the Microbites exhibition. The machine used salvaged and custom-designed 3D-printed parts, together with AI software, to generate a continuous stream of handwritten text. (Photo CC-NC-ND ACM Creativity & Cognition on Flickr; used with permission.)

The conference also featured five pictorial presentations as part of the technical program. Pictorial papers are a relatively recent advancement, first introduced as an acceptable publication format to the wider ACM community at the ACM Designing Interactive Systems (DIS) conference in 2014. The authors of pictorial papers present their work primarily

FIGURE 3. Wallace Lages works on setting up his "Better Hands" installation, which explored the role of authorship by using participant electric signals as raw input for a robotic drawing arm. (Photo CC-NC-ND ACM Creativity & Cognition on Flickr; used with permission.)

FIGURE 4. Kitty and Andrew Quitmeyer's "Yarncraft and Cognition" installation. An e-textile brain sculpture was illuminated via a brain-computer interface by a participating knitter. (Photo CC-NC-ND ACM Creativity & Cognition on Flickr; used with permission.)

in the form of high-quality visual materials (drawings, photographs, collages, and so on), with tertiary accompanying text supporting the main visual document narrative. For example, Eli Blevis's pictorial, "Qualities of Focus," presents a series of nine full-page photographs that are all purposefully out of focus. The reader or viewer is then challenged to try and imagine what the photos might be, before Blevis reveals the reality behind the pictures. The accompanying pictorial text serves to frame comprehension of not only the photos themselves but also the politics of accuracy and truthfulness in image making.

Art Exhibition

Another key aspect of the conference (and in keeping with previous iterations in the series) was the outstanding "Microbites of Innovation" (http://microbites.me) art exhibition curated by Markéta Dolejšová and Marcia Nancy Mauro-Flude. Located at the visually stunning ArtScience Museum of Singapore, the exhibit featured 24 installations, four live performances, and multiple artist interviews presented over the course of a week. The curators described the role of the art showcase in contributing to "the debate on the role of human and non-human cognition in contemporary computer culture. Specifically, it addresses how our individual and social histories, cultures and experiences are shaped."

Figure 1 depicts a group of museum visitors interacting with Ruben Van De Ven's "Emotion Hero" installation, which provided participants with feedback on their facial mechanics as a critique of the digitization of emotions.

Several installations examined contemporary and historical relationships between technology and the creative hand. Bill Hart's "An Autonomous Writing Machine" utilized salvaged and custom-designed 3D printed parts, together with AI software, to generate a continuous stream of handwritten text (Figure 2). "The Better Hands" exhibit similarly explored the role of authorship by using participant electric signals as raw input for a robotic drawing arm (Figure 3).

Finally, in a provocative examination of the growing interest in the therapeutic effects of crafting, Kitty and Andrew Quitmeyer's "Yarncraft and Cognition" installation embodied the "neuroscience of yarncraft," with an e-textile brain sculpture that was illuminated via a brain-computer interface by a participating knitter (see Figure 4).

The high-profile nature of the public showcase venue truly represented the ambitious vision of the general conference co-chairs (David Ayman Shamma of FX Palo Alto Laboratory and Jude Yew of the National University of Singapore) to expose the products and outcomes of academic cultural practice to broad and diverse audiences. In support of these public-facing efforts and the conference overall, the Singapore Tourism Board in particular provided considerable assistance in helping to make the conference's first trip to Asia successful.

The next C+C conference will take place in 2019, and although the location has yet to be decided, the call for papers and artworks can be expected sometime in late 2018, so plenty of time for *IEEE MultiMedia* readers to begin planning their submissions. ᴧᴧᴧ

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