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The Creators Project pairs artists with Intel Labs researchers to design the interactive installation #CreatorsLive

BY **JULIA KAGANSKIY**

Typically, the researchers and engineers working at Intel's many lab facilities are thinking about the future of computer interfaces, how to design a more powerful processor chip, or how to simplify human-computer interaction. They're analyzing the current technological landscape and anticipating the future needs of consumers and businesses alike, imagining solutions to problems as yet unforeseen. But rarely, if ever, are they making art based on their research.

Yet that's exactly what Doug Carmean, Intel Fellow and director of the Efficient Computing Lab at Intel Labs, has been doing for the past year.

Through a partnership facilitated by The Creators Project—Intel and Vice's global arts initiative—Carmean has been collaborating with Social Print Studios on an art installation that has been traveling the world as part of The Creators Project's cultural event series, visiting Beijing, Paris, San Francisco, São Paulo, and Seoul. The project, called #CreatorsLive, aggregates real-time
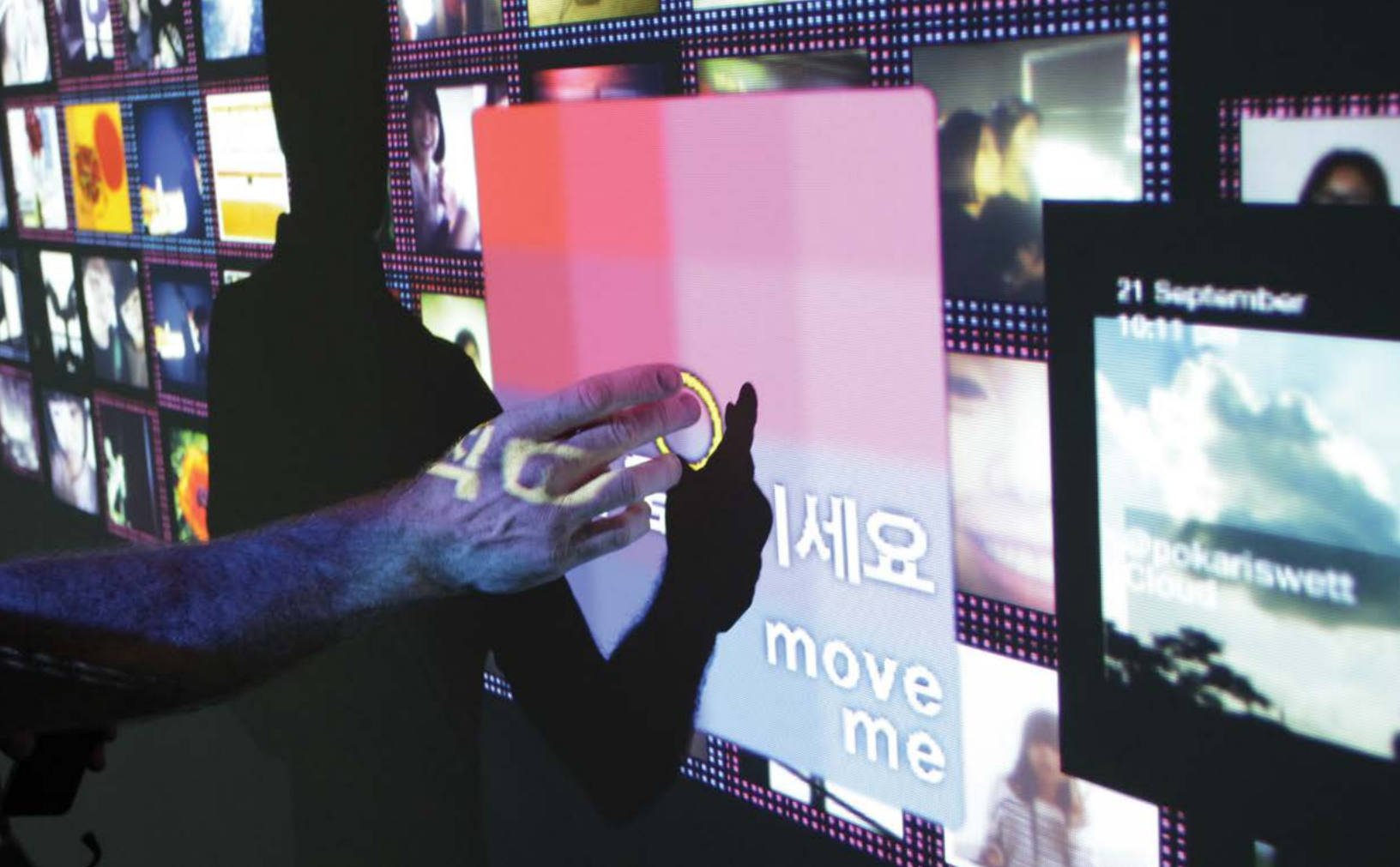
ABOVE LEFT *Photograph by Pierre Emanuel Rastoin.*

ABOVE RIGHT *Photograph by After1201*
(www.after1201.com/art_main.html)

Instagram* photos from the events and allows visitors to interact with them in two gesture-based ways. On a plain wall that was turned into a touch-sensitive surface, they used a Microsoft Kinect* to track visitors' movements through the installation space, and they shuffled the photo display based on users' motions and gestures.

The result is a beautiful, intuitive, highly social installation that artfully integrates research exploring visual computing experiences and the continuous flow of geo-located social photos, which Carmean and his team at Intel Labs have been conducting for the past several years. #CreatorsLive made its debut at The Creators Project: San Francisco event at Fort Mason in March 2012 where it was experienced by thousands of visitors who were delighted to see their Instagram snapshots, tagged with the hashtag #Creators, become instantaneously integrated into an artwork in the main exhibition hall.

Since its debut, #CreatorsLive has continued to evolve, fueled by new

minds and new research from Intel Labs. In April 2012, Margaret Morris, a senior researcher with Intel Labs, joined the team. Morris, a clinical psychologist who studies emerging technologies and influences future product directions, saw an opportunity for the installation to promote interpersonal connectedness by adding an emotional layer.

"We wanted to get beyond thumbs up/thumbs down exchanges to emotionally rich dialogue and play," explained Morris. "The emotional layer that we developed has a closed loop of emotional classification via sentiment analysis and self-expression. We capture the feelings people have when taking and posting photos and invite people to express how photos make them feel as they are viewing them in the installation."

The emotional layer helps paint a picture of the collective mood and emotional experience of each respective stop on The Creators Project global tour. Morris and Carmean plan to continue developing the project further in 2013 by experimenting with the use of text,

color, and sound, as well as creating an online component that will live on TheCreatorsProject.com to complement the physical installation.

Doug Carmean and Margaret Morris took a break from their work to offer insights on "enlivening" technology during this recent interview.

Intel® Software Adrenaline (ISA): What has it been like for you, as an engineer, to collaborate with artists on #CreatorsLive?
Doug Carmean: It has been truly inspirational, providing philosophical direction for research and products that will influence Intel's future. This experience has pulled me well outside of the box, beyond my comfort zone and inspired me to think differently.

The specific project with Social Print Studios has turned out to be a nearly perfect marriage. Ben Lotan from Social Print Studios has a Masters in Fine Arts, and has a nice perspective for aesthetic and art quality. He's not as encumbered by technical details or by the way engineers typically approach development problems. Likewise, my team had the formal training in hardware and software development. We come from doing everything from building processors that are shipped to hundreds of millions of units to developing video games. We've got this really formal background of doing

product development, but not so much in artistic installations. Together we saw our complementary strengths and how we could bring those together. It was like a super complementary, highly-motivated collaboration, with Social Print providing good inspiration for the art side and my team with this strong technical foundation, wanting to collaborate and make it something useful.

ISA: What were your design goals with #CreatorsLive?
Margaret Morris: To break down the boundaries between people and computing and to "enliven" technology. We want to engage people while they are using the installation and to capture the collective vibe of the different Creators events over the world.

ISA: What design challenges and opportunities did you encounter along the way? How did you address them?
Morris: A key feature of this system is its ability to transform any surface into an interactive surface. The surfaces we used at Creators events were typically concrete walls in large warehouses. In many cases, the walls were neither flat, nor completely smooth, making interactivity challenging. To create a large interactive surface we used projectors and multiple depth cameras, specifically the Microsoft Kinect. Our

algorithms allowed the depth cameras to be positioned at any orientation without interference.

ISA: Did you encounter any surprising design opportunities along the way? How did you address these when they presented themselves?
Morris: This has been a process of constant design iteration. Early on we realized that we needed to integrate the technology with the applications people already love, such as Instagram. We've altered the interface over time based on how people were using it and pushing its limits. For example, we noticed people peeking behind the scenes at the computers that drove the installation, especially in Beijing, and so we decided to make this information (such as the infrared images of people approaching the projection) part of the installation. This made the installation more alive and more interactive. People like to see themselves in the art, as it is forming.

ISA: How does this project integrate or build on research that you're doing in Intel Labs?
Morris: At Intel Labs we strive to reinvent technology and the experiences people have with technology. We do this by studying people's lifestyles— current use of technology, their aspirations, and challenges—and by creating new capabilities and interfaces that we expect will be transformative. In my research, I explore how emerging technologies can promote emotional expression and connection. #Creators Live has shown us a variety of ways that people express themselves, relate to others, and participate in art. By sharing their own images and responding to other images in the installation, a huge number of people became creators, shaping the recording of these events.

ISA: How did adding the emotional component alter the user experience? What new design challenges did this present?
Morris: The collection of photos in #CreatorsLive now embodies the emotional experience of Creators events around the world. Participants have been extremely creative in how they use these tools to represent mixed feelings and complicated situations, to visualize
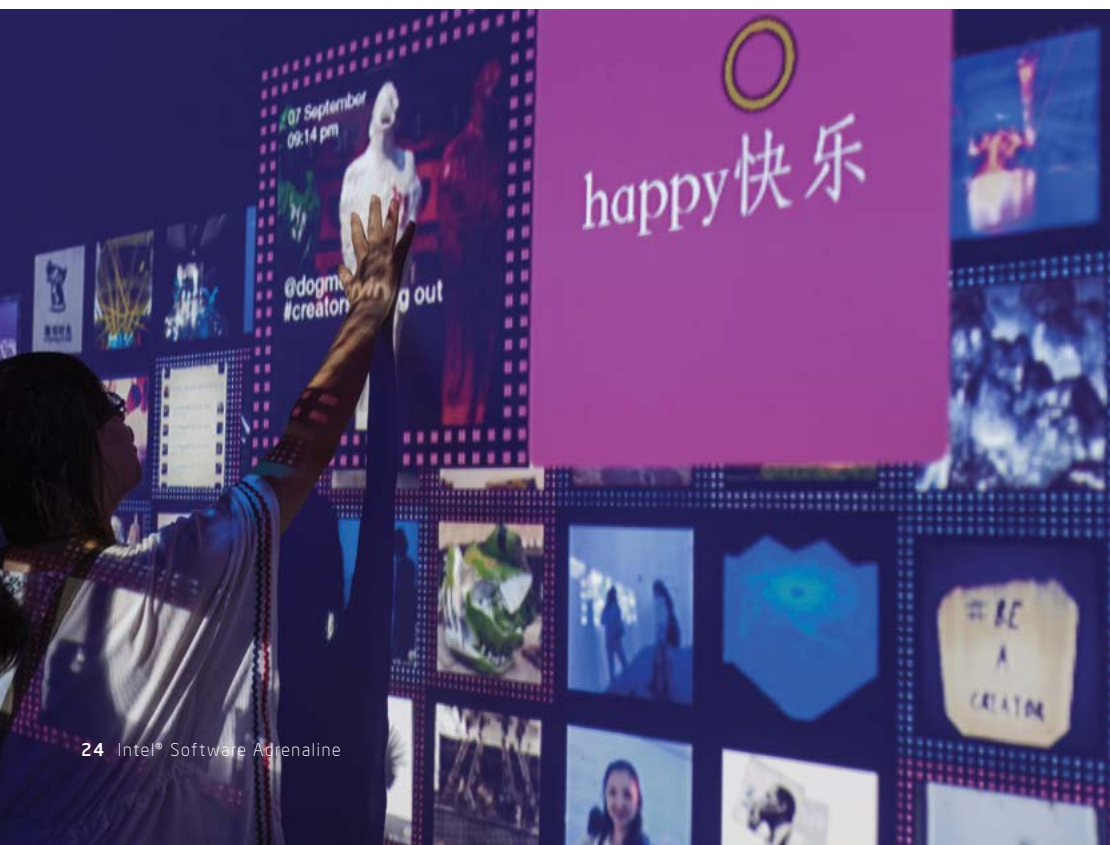
emotional associations among photos, and to represent themselves as part of the social experience.

One of the major design challenges is creating an intuitive, playful interface for emotional expression. We want to invite emotional expression without using instruction. We are using a spatial model of emotion, and exploring color, text, and music as ways of representing emotional states in this model. So far it seems that most people, even young kids, seem to get into this mode of self-expression. We've been collaborating closely with visual artists as well as composer Mira Calix, who developed Sacred Heart for the Creators' San Francisco event. The ability to express emotional responses to photos with sound as well as color has made the installation far more intuitive and engaging.

Our next steps include bringing this capture of collective emotional events online and using these emotional responses to help people discover new art and people. We are working with The Creators Project on these and a variety of other exciting directions.

ISA: What do you think engineers have to gain from collaborating with artists?

Carmean: The artists get engineers to think differently as they approach the world from a creative perspective that is largely absent of technical constraints. They force us to think of design in a simplified, natural way.

Every time we do an interface, I have a tendency from my technical background to include buttons, menus, drop-downs, words, and instructions. I think the way [artists approach design] is based on the notion that you should be able to do this without any instructions or words. If you look at what we attempted to do with #Creators Live, the only thing we put on the display was just the #Creators, and the words "Instagram" and "Twitter," and from that, it was amazing. We had thousands of people pick up on what that was all about.

ISA: How important is this exchange between artists and engineers?

Carmean: I think it's super important because it's rethinking the way technology gets integrated into our lives and culture in general. Computer architects and engineers tend to

think about computers and devices as supercomputers that are organized in very specific ways. The integration of the artist into the mix makes it so that computers and devices fit well culturally, have an aesthetic that's pleasing, and have an entertainment value. I think that is socially rewarding, because using a computer is an experience people enjoy. My mother and my wife enjoy using computers that we build. From a business point of view, it makes sense because now we're opening up these areas where technology previously wasn't relevant—the arts, for example. We can have an impact culturally, and pull that back to something that is good for the business as well. It's incredibly important because it has a high social benefit as well as a tremendous business opportunity. It's exciting for those prospects.

ISA: Do you feel like you pushed the "edge" of computing?

Morris: Yes, we pushed social computing to be truly social and affective computing to stretch from emotional recognition to emotional expression. We saw people using the installation to express themselves with

an emotional complexity that isn't possible in today's devices and social media platforms.

ISA: What are the implications for other developers trying to do the same thing?

Morris: Developers need to integrate artists into their design teams very early in the design process. The artists will influence all aspects of development, from obvious design tradeoffs to the essential approach. The process needs to be agile with rapid iterations that allow artists to inject ideas at many points.

ABOVE *Photograph by Jason Hernandez.*

ABOUT THE AUTHOR

Julia Kaganskiy is global editor at The Creators Project, an arts and technology initiative founded by Intel and Vice. The Creators Project supports visionary artists across multiple disciplines who are using technology to push the boundaries of creative expression and features an international event series, a web documentary series, an arts production studio, and an editorial hub on TheCreatorsProject.com.