

# Life in 3-D



Images of humans projected on Sydney's iconic Opera House, May 25, 2012. COURTESY URBANSCREEN

## 3-D PROJECTION MAPPING

BY RUSSELL PIFFER & JULIE FISH

Donning a Nordiques sweater, Winter Carnavale mascot Bonhomme broke through the wall of Quebec's art deco Palais Montcalm to conclude the American entry in Lumocite, North America's first 3-D projection mapping festival in February.

The festival is part of Quebec City's Carnavale and included entries from Canada, the United States, Switzerland and Hungary. The creations were based on the theme "winter dreams" and displayed for four days in temperatures that dropped as low as -35 C.

"We wanted to show, not just dreams of icicles, but what Quebecers are dreaming in the winter and one of their dreams, of course, is to get a hockey team back," says Philippe Bergeron, president of Paintscaping, the company that created the U.S. entry, from his office in Los Angeles.

3-D projection mapping uses points

of light to augment surfaces – usually walls and facades – with three-dimensional eye candy. Although corporations have dabbled in using the technology as an advertising gimmick, it really is best suited for creative displays like those at Lumocié.

"People think that mapping is the future of advertising and it's true and it's not true," Bergeron says. Buildings' contours usually make it difficult to make a projection map of a corporate logo, he says.

Bergeron says Paintscaping steers away from advertising projects, electing to design conceptual narratives for groups such as Cirque du Soleil, for which the company crafted an Egyptian-themed projection mapping in Hollywood in 2011. Most recently, Paintscaping produced 3-D special effects for the Rod Stewart video "Sexual Religion," which released May 7.

"We found that narratives are much more powerful because you can easily write a story around the architecture," he says. "This doesn't mean that you can't have it sponsored by Coca-Cola, of course. But to us the power is in the narrative, not advertising. Not direct advertising, at least."

James Higuchi of Toronto-based Tantrum Design, which created a 3-D projection mapping display for the mountain at Canada's Wonderland in 2011, says there is an initiative to use 3-D projection mapping for advertising

"Whether or not it has legs... I can't say," Higuchi says.

In November, Subaru unveiled its 2014 Forester using 3-D projection mapping to show robotic arms assembling the vehicle from scratch on stage at an auto show in Tokyo. Launching new automobiles with a 3-D projection

mapping display has practically become standard practice among automakers, with Nissan, Volkswagen and Chevrolet all using the technology in the last year.

However, producing a large conceptual piece using 3-D projection is expensive and time-consuming, Haguchi says. It's therefore not yet seen as a practical marketing campaign.

Higuchi's colleague, Dominik Wojtarowicz, says he thinks people will soon tire of basic 3-D projecting.

"The effects are almost re-occurring," he says. "You always see water splashing out and there's some fish in the windows. It's all the same kind of gags.

"There are avenues unexplored that could be exploited for sure, it's just going to take somebody saying 'hey why don't we try this' and then being able to fund it," he says.

Lumocité organizer Alain Dubé, a video producer based in Quebec City, says the festival exceeded expectations.

"The only criticism we had about Lumocité was that it was not long enough," Dube says. "A lot of people are just used to seeing that [3-D projection mapping] on YouTube and the Internet but when you see it for real it is very impressive and people just loved it."

Organizing the 2014 festival was already underway in early-April and Dubé hopes to expand to 10 days of presentations on six buildings.

Bergeron thinks that ultimately, 3-D projection mapping will move beyond the sides of buildings and have a substantial effect on how we perceive reality.

"In the distant future, I believe that every light will be a projector, we're talking 50 years from now," he says. "You could do mapping on the entire area surrounding a light, which brings us to a very interesting point."

Even the inside of people's homes could become canvasses for reality-altering projections on walls, ceilings and floors.

"In the future, you won't be able to trust reality anymore. Reality may be fake and you won't know it," he says. 🌟

## PRINTING IN 3-D

BY SARA YONIS & RUSSELL PIFFER

Proto3000's headquarters in Vaughan looked almost like a scene from Toy Story. A disassembled Mr. Potato Head and a Tyrannosaurus Rex locked in combat with an action figure sat on a ping-pong table in the warehouse. In the upstairs office, communications specialist Alex Lombardi moved about with *Convergence* reporters in tow, showing off his company's creations.

They included a human foot, made from clear gel to show interior veins and bones, a bicycle chain and a plethora of plastic figurines.

"The coolest thing I find is the working stuff, moving, living things that come off a printer," Lombardi says.

"You can print a whole car."

3-D printing is on the cusp of an explosion, perhaps like computers in the late-1970s, which went from gigantic room-sized devices that could perform rudimentary mathematical tasks using tape and punch cards to a fundamental part of life in only a matter of years.

According to *Forbes Magazine*, the 3-D printing industry will be worth \$3.1 billion by 2016.

The items made by the printers at Proto3000, while mind-boggling in their own right, represent the function 3-D printing has been serving since the 1980s – printing off plastic items that were created with three-dimensional design software.

The printers are square, plastic boxes with a complex maze of microchips and lasers within, that range from desktop models to larger industrial units that look more like Xerox machines.

"An inventor can come to us with an idea and actually get a prototype; a working, physically in your hands, prototype," Lombardi says.

George Paravantes, a multimedia design and development and web design instructor at Toronto's Humber

College says 3-D printing is a game changer in the world of design, especially cheap and accessible 3-D printing.

"After you make the prototype, you bring it to a team that's working on it. You can use it to kind of win over teammates, win over other stakeholders in a project, to kind of help move a design forward," he says.

If 3-D printing didn't already sound like a concept lifted from a science fiction novel, researchers at the field's forefront are working on using the devices to generate human tissue.

Dr. Anthony Atala, from the Wake Forest Institute for Regenerative Medicine in North Carolina is one of the doctors paving the way for regenerative medicine. With his team he is printing a bladder for human transplant.

"The ultimate goal of regenerative medicine is to help address the shortage of organs available for transplant. We are pursuing multiple strategies to meet this goal . . . one [strategy] is to print cells and biomaterials into a 3-D organ prototype," he said in an email.

The U.S. Armed Forces Institute of Regenerative Medicine, which focuses on dealing with burn victims, is teaming up with Wake Forest to develop a 3-D printer that can make skin graphs.

The printer will generate skin so doctors won't have to take it from other parts of the body, saving burn victims a lot of pain, Dr. Smita Bhonsale, director of science and technology at the institute, told *Convergence* in an email statement.

"Instead of putting ink in the cartridge you put human fiberglass or human keratinocytes – which are the cells from the skin – add a scaffold or a collagen so that it can gel together," Bhonsale says. "It's going to be a more controlled and more precise way of treating a burn victim." 🌟