The Right Medium

Gary Singh

Cover artist Carmen Hull discusses the visualization model that appears on this issue's cover.

Currently a PhD researcher in the University of Calgary's Computational Media Design program, Carmen Hull operates independently of academic disciplines in the traditional sense. Instead, she navigates the connecting routes between them. Having already endured a few previous careers—first as an artist, then as an architect—she finally seems to have found a home in the wide open frontier of computational media design.

"I was just looking for the right medium," Hull says. "I never was really satisfied with painting for itself or graphic design for itself. It felt like I wanted to push it further or find something beyond myself and what I liked that could be interesting to reveal, or that could emerge."

Hull spent several years in arts academia when she was young, mostly working in film, where she dealt with costumes, lighting and cinematography. She says the art department essentially functioned as the architect of the film, encoding all the visual aspects of the narrative. Then she moved on to architecture, which she found to be much more serious of a discipline, one that was very engineering-based, developer-based and construction-based. She enjoyed both disciplines, but still wasn't able to find a sweet spot to accommodate what she was really searching for: an idea of computation and emergent form, a way of throwing all the variables into a hypothetical black box in order to write a recipe and see what comes out the other side, after which she could then tweak the recipe—that is, the code—and make it better.

The Computational Media Design program has brought Hull closer to that sweet interstitial space between disciplines, finally allowing her to work on projects more powerful and complicated that anything she could produce in her own mind. Plus, the program welcomes an oddball mélange of crackpots from every possible creative or scientific background.

"It's really satisfying in that way," Hull says. "You can find people that are pretty close to what your background was, so you have that shared journey, but then there's also people that have slight variations on the theme. And then there's people who are just wildly different, coming out from computer science, but you can still have a really interesting conversation, and you find that you sort of arrive in the same place."

ILLUMINATING DATA

Both the cover image and Figure 1 show close-ups of a physical scale model of the University of Calgary campus. When displayed, the model is placed on an illuminated touch screen, with different layers of visualizations then shown up through the model (see Figures 2 and 3). The intention is for any viewer to then relate his or her own visceral experience of the building, his or her previous familiarity with the structures, with these new visualizations and see if the process then elicits new understandings of the data.
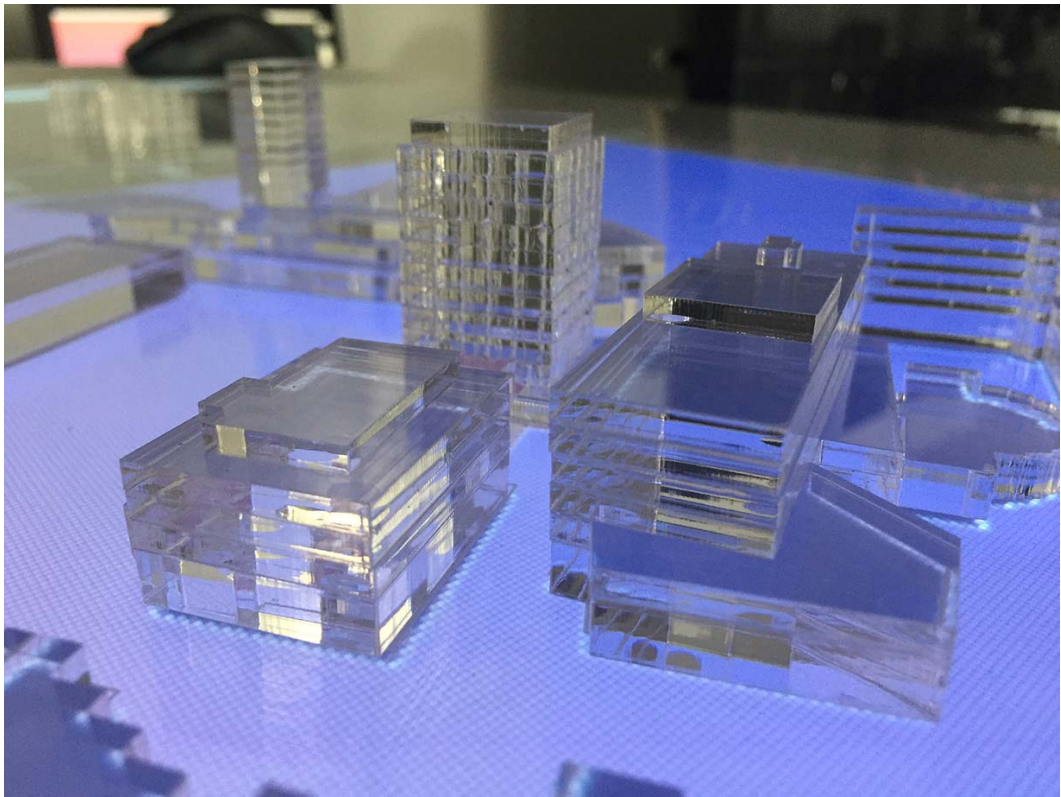
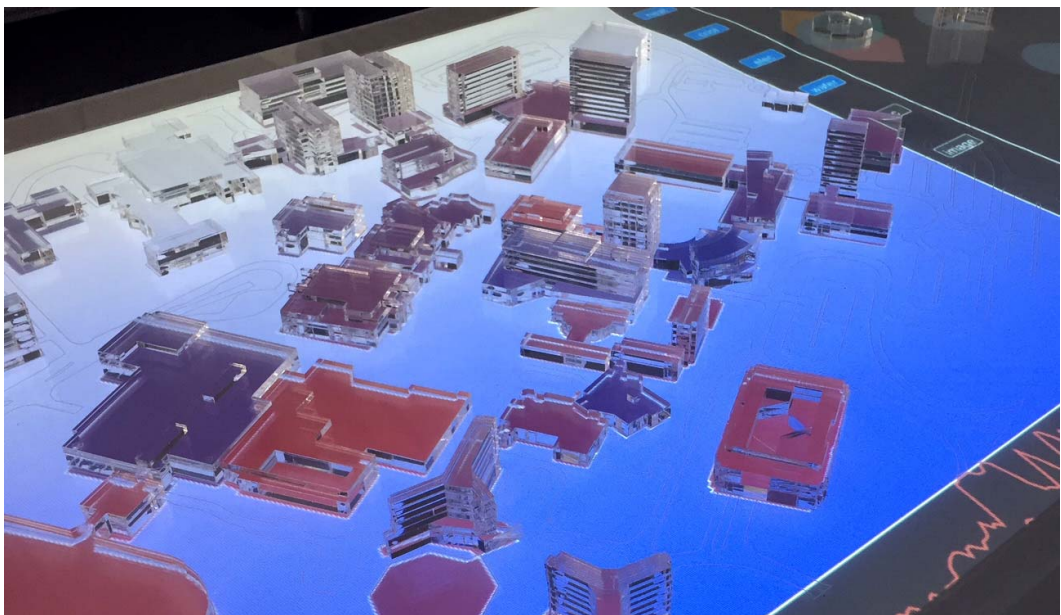Figure 1. A physical scale model of the University of Calgary campus.

Figure 2. Placed on an illuminated touch screen, different layers of visualizations show through the University of Calgary campus model.

"From all of our experience traveling through the university and being in those buildings, from the students to the operations managers, we all have a very deep history of those buildings," Hull explains. "So what I was hoping to do—and this is what I'm studying right now—is by visualizing these data sets with a model, you sort of transport yourself into the model. You imagine yourself walking around in the model. I was wondering if that would trigger some new sort of connections as to what this data means."
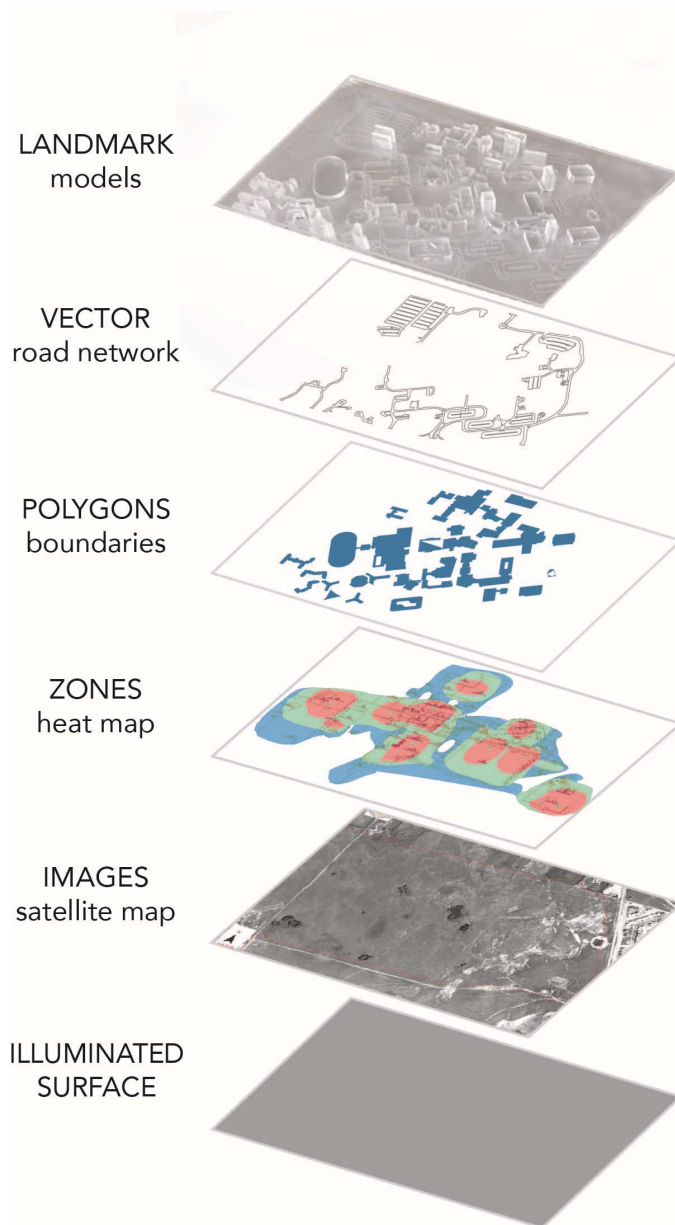

Figure 3. A diagram showing visualizations display that can be projected on the model of the University of Calgary campus.

For example, recent viewers of the physical scale model were already familiar with the Calgary Olympic Oval—formerly used for speed skating events—but when they viewed a visualization of how much cooling energy was actually needed in the building, despite all the ice being used, they immediately started wondering why the facility would need such energy. They asked questions right off the bat because they associated the Oval building with skating and were thus jarred by the visualization of all the cooling technology it still required. The combination of a

physical model and data visualization together, when viewed at once, had a much more profound effect than if the visualization was experienced by itself.

"It takes them no time to start asking questions, because they instantly connect the familiar experience of the model of the building with the data that's being shown," Hull says. "So it takes very little time for them to process the information, for them to understand what the visualization is doing, because it connects with their experience of a place, their direct personal experience."

REDEFINING INSIGHT

Unlike some others, Hull doesn't see the academic world as a hindrance to creativity. Instead, she finds within its confines a sweet space of experimentation, but without being too divorced from what unfolds outside the ivory tower.

"You have the freedom in academia, or research, to kind of push the edges a little bit, but you still have some sort of connection to the real world, to things that are relevant to the industry today," Hull says. "You're still rooted in the contemporary practices and contemporary issues, but you're allowed to play a little bit more."

What's more, now that "data artist" is an actual term, Hull will continue to apply insights from architectural design to the creation and interpretation of data physicalization. She will likewise continue to build bridges between previously disparate methods of inquiry.

"I think what each of those disciplines is trying to find is some sort of humanity within their work," Hull says. "We're trying to find something that connects to other people, that inspires them to think of the world in a different way, or helps them to see the world in a different way." While that may describe an artistic perspective to data visualization, Hull says she is not interested in a purely subjective approach to data art.

"I still want people to be able to get some insight or some utility from it, but I think that we can really expand how we define useful or how we define insight," she says. "So that's sort of where I'm focusing it right now."

ABOUT THE AUTHOR

Gary Singh lives and writes in San Jose, California.