

We Can Build the Future

Ed Finn, Arizona State University

Merging storytelling and making, Arizona State University's Center for Science and the Imagination is encouraging people to build the future by assembling and reimagining the pieces of the future already surrounding us.

FROM THE EDITOR

Ed Finn and the Center for Science and the Imagination are taking science fiction prototyping into amazing new vistas and far-off planets. Their Hieroglyph and Frankenstein Bicentennial projects exemplify what can happen when imagination meets science. Ed shows us how we truly can build the future. —Brian David Johnson

“The future is already here; it's just not evenly distributed.” Many readers will instantly recognize science fiction author William Gibson's powerful statement on the uneven nature of change. It implies that the future is an emergent force that could suddenly manifest anywhere, and that we need to be on the lookout. That uneven future might be lurking in the technology-laden alleys of Gibson's beloved Tokyo, or in a Palo Alto garage—or at a Texas school where a student brings in a homemade clock.

Gibson's quote also suggests that some people are privileged to experience the future before others. But in the spirit of science fiction prototyping, what if we hack this idea a little? Instead of looking for the future or accepting that it belongs to the technological elite, what if we build it ourselves? From the maker movement to homebrew mobile applications and DIY space satellites, people around the world are recognizing that Gibson's words can

be rewired: we, too, can distribute the future.

This kind of creative engagement is especially important not only for coming up with new ideas about the world, but also for grappling with artifacts of the future that are already here. When you ask kids to build a robot, you're not simply empowering them to design and build their own toy (a toy that reflects their social, economic, and cultural identities). You're also asking them to reinvent robots for a generation that's already used to devices that talk and sense the surrounding world. The real payoff of making our own objects and

prototypes isn't the stuff we build, per se, but the insights we gain from bringing together technology, design, and imagination. This is why we're so keen on weaving together storytelling and making at the Center for Science and the Imagination at Arizona State University.

PROJECT HIEROGLYPH

Project Hieroglyph (<http://hieroglyph.asu.edu>) dared science fiction writers to work directly with scientists and engineers on ideas just emerging from the lab. Together, they crafted ambitious visions of a near future in which technology revolutionizes life as we know it: a literacy pill, a robot that prints objects out of moon dust, a 20 km-tall tower. The stories in the first anthology, *Hieroglyph: Stories and Visions for a Better Future*, encourage young students—from high school English to college engineering—to think deeply about the world they want to live in and what they'll need to get there.



By uniting the question of what objects the future holds and the deeply human process of narrative, we raise further questions that the objects themselves only hint at. Storytellers who write new technology into their plots soon discover vexing questions and unintended consequences that make for a richer understanding of current and future human experiences. The boundary lines and failure modes of *Star Trek's* communicator, tricorder, transponder, and other technologies define the plots of many a classic episode. More importantly, these futuristic scientific instruments often inspire profound questions about the subjects they are supposed to measure: communication, biological life, and embodied presence.

THE FRANKENSTEIN BICENTENNIAL PROJECT

If this all seems a little abstract, let me ground my argument with a more visceral story. Not quite 200 years ago, a young woman wrote a novel about a scientist who created artificial life in a lab. Today, that story is no longer science fiction. High school students compete annually in the International Genetically Engineered Machine competition (<http://igem.org>), creating synthetic biology projects that tackle a wide range of problems. Some people have grown quite attached to their robot dogs. Google's Deep Dream is mastering a wide range of artificial intelligence challenges, from playing videogames to recognizing and describing images. Along a startling number of dimensions, our technological reach is rapidly exceeding our cultural grasp, proving the enduring resonance of Mary Shelley's *Frankenstein*. Shelley's story is commonly read as a cautionary tale, but it's also a profound meditation on the many kinds of creativity and responsibility that our scientific advances have made possible.


To grapple with these changes, we need both new stories and new practices of making. I'm codirecting a Frankenstein Bicentennial Project (<http://frankenstein.asu.edu>) that uses the Frankenstein myth to do just that. We'll mark the novel's bicentennial with a collaboratively curated digital museum; a widely distributed set of tabletop demonstrations and interactives for use in science centers, museums, and similar spaces; and a stream of DIY maker challenges for young people to pursue at home, school, or their local makerspace. We'll encourage people to notice the unevenly distributed futures all around us, to pick them up and examine them, and to share them thoughtfully.

The digital museum will serve as the project's central hub, bringing together content from a network of institutions with archival, scientific, and pop culture materials that touch on the Frankenstein story. Visitors will have the chance to browse expert-curated collections and to create and share their own collections, drawing on scientific and engineering history (for example, the discovery of electricity), as well as the literary history of Shelley's novel and its many creative adaptations in contemporary storytelling. We see these visitors as our co-creators, fellow curators, and discussion leaders. By inviting them to reflect and create, we hope to encourage a deeper sense of engagement with, and agency around, science in society.

This project flips Gibson's quote on both its material and temporal axes. In terms of stuff, we're asking people to make their own futures by assembling and reimagining all the pieces of the future currently surrounding us. Participants might follow a maker recipe to add sensors and motors to an old household toy, learning some basic engineering along the way and building their own "living" creature that reflects

their attitudes on play, imagination, and technology. The emergent discoveries, new products, recurring characters, and mythological themes that mark the interface between science and society are all raw material for a process of critical engagement and making.

In terms of time, we're looking for Gibson's unevenly distributed future by remembering the past. Shelley's novel barely mentions the technical equipment that Victor Frankenstein must have needed to complete his experiment, but it eloquently addresses today's urgent ethical and social challenges. We're now struggling with the opposite problem: we're so caught up in the immediate challenges of technical troubleshooting and first-order social integration that it's much harder for us to see the narrative's broader arc: the lasting impacts these new technologies might have over the next several decades.

Through Project Hieroglyph, the Frankenstein Bicentennial Project, and other initiatives, we're holding up Gibson's quote as both a piece of good news and a call to action. The future is here; we just don't have the words or material knowledge to understand it. To find that future and to share its most exciting, inclusive, and uplifting aspects, we need to roll up our sleeves and make it happen. 

ED FINN is the director of the Center for Science and the Imagination and an assistant professor in the School of Arts, Media + Engineering and Department of English at Arizona State University. Contact him at edfinn@asu.edu.



See www.computer.org/computer-multimedia for multimedia content related to this article.