A. KOBLIN

The *New York Talk Exchange* project visualizes the global flow of telephone and Internet data.

Q&A Aaron Koblin

The data visualizer

Aaron Koblin, head of the Data Arts Team in Google's Creative Lab, uses data visualization and crowdsourcing to reveal the changing relationship between people and technology. As he presents his work at the Eyeo Festival of digital creativity and prepares to release a collaboration with Google, London's Tate Modern and artist Chris Milk, he talks about the beauty of big data.

NICK HIGGINS

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What place does visualization have in science?
Scientists have an amazing quantity of data, but their presentation can drain the meaning and power from it. They sometimes get stuck on the data, and don't work up to information, knowledge and wisdom in their communications. Human visual perception has been tuned by evolution. Good visualization allows an illuminating god's-eye view of the data. Medical imaging is the most obvious example, but you can see the value of visualization everywhere from statistics to physics and chemistry.

What does leading the Data Arts Team entail?
We create demos and hacks using the latest web technologies. We have a gallery, ChromeExperiments.com. My favourite experiment is *The Wilderness Downtown*, a 2010 music video for the band Arcade Fire, which asks you to enter the address where you grew up, then uses Street View and satellite imagery from Google Maps to zoom into that location as if the narrative were unfolding in your town.

What else have you done with data?
For *Flight Patterns* (2005), I processed data from the US Federal Aviation Administration to create an animation of air-traffic density and movement, showing the beautiful ebb and flow of people moving through pathways in the sky. With the SENSEable City Laboratory at the Massachusetts Institute of Technology in Cambridge, I did a project using real-time long-distance telephone and Internet data from telecommunications company AT&T, called *New York Talk Exchange* (2008). We broke the data down by borough and compared them with ethnographic and demographic data to see how different groups communicate around the world.

Has your visualization work brought other opportunities?
At the Center for Embedded Networked Sensing at the University of California, Los Angeles, I worked for Mark Hansen, a statistician and data artist, writing visualization software for three-dimensional laser scanners that measured environmental conditions, such as sunlight exposure through rainforest canopies and erosion of hillsides. The visuals were so beautiful that I set up an installation in the centre's lobby to show how people moved through the building. A director saw it and asked me to help to make a "music video without video" for the band Radiohead, using laser scanners.

Some of your music videos look like they were filmed through a microscope. How were they made?
In the video for Interpol's 2008 song *Rest My Chemistry*, I used principles of repulsion and attraction to animate vertex-only models of human bodies. It was programmed using algorithms from physics demonstrations online. Much of the same code was used on another (unofficial) interactive video for Dopplereffekt's 2007 song *Hyperelliptic Surfaces*, programmed mostly by Aaron Myers. It was meant to have the look of particles moving under a microscope, using depth effects to simulate the narrow frame of focus in microoptics. You can see all the forces playing out on the particles, creating complex patterns of motion. We didn't start with real scientific data sets. We created them ourselves.

You've also worked with crowdsourcing?
I thought that Amazon's Mechanical Turk platform, which lets people outsource any computer-based task to people all over the world, was one of the most powerful and disturbing ideas ever to materialize as a product. I was troubled by how the workers often have no idea who they are working for or what they are doing. But I was curious as to how it might be used for art and cultural investigations.

How did you begin to hire strangers online?
In Antoine de Saint-Exupéry's *The Little Prince* (1943), the narrator is asked repeatedly to draw sheep, and learns that imagination is more important than precision. I paid online workers 2 cents each to draw one of 10,000 digital sheep, to create *The Sheep Market* (2006). It was amazing to see them coming in. I have also paid more than 2,000 people to sing single notes from *Daisy Bell*, the song used at Bell Laboratories for the first musical speech synthesis. I resynthesized the song in a distributed chorus that came out sounding like a dystopian horde of gremlins. I called it *Bicycle Built for Two Thousand* (2009).

Is originality possible in data-driven art?
All art is a representation of some influence. With data-driven projects I consider myself more of a 'first viewer' than 'The Artist'. The data tell a story, and I craft and reveal it. I'm not concerned with where that leaves me as an artist. It is more about sharing something that we can all reflect on. ■

INTERVIEW BY JASCHA HOFFMAN