don't emphasize animation as much as that at Toronto, are not quite ready to work as production-level animators in a studio, says David Bolinsky, medical director of XVIVO. He recommends taking another year or so to attend a dedicated animation programme.

Many students entering the Toronto programme have bachelor of science degrees; an increasing number have advanced degrees, including PhDs, says Nicholas Woolridge, director of the course. Most are "passionate amateurs" in art, he adds. Applicants must submit a portfolio of work. "It doesn't have to be polished, but it needs to show that they can think visually and are visual problem-solvers," says Woolridge.

McGill, who teaches a one-year animation course for researchers at Harvard, is developing a new graduate programme, focusing on computer 'biovisualization'. Applicants would need to meet the same entrance requirements as for Harvard's other biology graduate courses, take the same first-year courses in cell and molecular biology and possibly even do lab rotations. McGill foresees his first set of students being existing PhD candidates who stay on for an extra year to earn an additional master's degree in visualization. McGill hopes to launch the master's programme in 2012, and eventually create a PhD programme. He sees his field shifting towards more research and software development, rather than just making animations.

Those interested in animation as a side activity or add-on skill to enhance their research can dabble at a basic level on their own. Many software packages, including Maya, can be downloaded at low cost, or even for free, as educational versions. "Just start playing and have fun," says Berry. Only then will people see whether they really enjoy the arduous and sometimes frustrating process of animation. Online tutorials, workshops and user forums can help amateur animators to learn on their own; see, for example, listings on www.molecularmovies.com. Most sites are geared towards film animation, but the concepts are the same.

McGill says that early-career scientists who master some skills in 3D animation can advance their careers by giving better seminars, using visual models of data to garner and inspire ideas and insights, and developing new research tools. In one case, a student of McGill's used his visualization skills to devise new DNA folding software that allows researchers to design their own molecules in three dimensions. "When you're going through the process of making a visualization," says McGill, "you come up with new questions and open up new ways of thinking." ■

Corie Lok *is the editor of* Nature*'s Research Highlights.*

TURNING POINT
Jennifer Burney

Jennifer Burney, a physicist-turned-environmental-scientist at Scripps Institution of Oceanography at the University of California, San Diego, tells Nature *about her upcoming tenure-track position in public policy and the unexpected honour of being named an Emerging Explorer by the National Geographic Society in Washington DC.*

SCRIPPS INSTITUTION OF OCEANOGRAPHY

How did you end up pursuing both physics and international development?

I graduated with a bachelor's degree in history and science; I have always wanted to discover how science happens in a social context. But I enjoyed scientific research, which prompted me to pursue a physics PhD at Stanford University in California. I deferred graduate school for a year to volunteer with rebuilding efforts in Nicaragua following 1998's Hurricane Mitch. It was exciting to be in the field devising creative solutions. I eventually returned for my PhD, working to develop a superconducting camera that will help to capture images of cosmic bodies such as pulsars or exoplanets. But I continued to work for a non-profit group in Merced, California, called Engineers for a Sustainable World, which works with communities in the developing world.

You worked in the non-profit sector for a time, instead of going straight to a postdoc. Why?

As my PhD ended, I chose to try a non-academic route. My adviser said he would support me in whatever I decided. I knew that I wanted to investigate energy and climate issues in the developing world. So I cold-called a non-governmental organization (NGO), the Solar Electric Light Fund in Washington DC, which is involved in rural electrification around the world. One project was solar-powered drip irrigation in West Africa. They needed somebody to figure out how to evaluate the technology. That required assessing the design and how to make it cost-effective and sustainable.

How did this work influence your postdoc?

I continued working with the fund, and got interested in how energy and climate affect food security, water availability and agriculture. In 2008, I took a postdoc at Stanford's Program on Food Security and the Environment. Last October, I started a second postdoc at Scripps, where I began working on mitigating the climate impact of burning biomass for cooking and space heating. Now I'm involved in a project to replace cooking stoves with cleaner technologies over 100 square kilometres in northern India — and then measuring the climate, health, hydrological and agricultural impacts over space and time.

Were you surprised to get a policy-based tenure-track position?

Yes. An advertisement for someone interested in science, technology, engineering and policy came up at the University of California, San Diego, and I thought, 'why not?' It was an exciting opportunity, not necessarily to straddle the worlds of NGOs and academia, but to have a job, starting next year, in which I would be teaching policy to scientists and science to policy-makers, while continuing my research.

How will the National Geographic Emerging Explorer distinction affect your career?

I'm still figuring it out. For the next year, *National Geographic* will track my scientific endeavours online. I just returned from the orientation meeting, where I met this year's class and previous explorers — and I have found a lot of common ground for collaboration. For example, one fellow works on ecological sanitation, and started a network of composting latrines in Haiti. We are planning some joint projects in West Africa, a region that needs new ways to generate fertilizer.

How have you benefited from stepping outside academia?

Leaving academia can invigorate your science. I'd encourage scientists to explore non-academic interactions — from giving public lectures to collaborating with NGOs. Being around non-scientists who channel their passion and understanding of science into real-life projects can shed light on how to make the most of your own expertise. ■

INTERVIEW BY VIRGINIA GEWIN