

Canadian researchers at top of class...

BY STEPHEN STRAUSS

Aaron Hertzmann is a new professor toiling at the University of Toronto attempting to create what he calls "Rembrandtland" — computer animations that literally look as if they could have been painted by the fastidious Dutch master.

Monisha Scott heads a laboratory in a new Vancouver company trying to develop pep pills for what she calls the body's "innate immune system." If successful, the unique treatment could open up the way for a novel drug therapy that circumvents the resistance today's antibiotics generate.

What ties these two disparate areas of research together is that a panel of experts has chosen these scientists as two of the 100 people under 35 around the world whose research might some day have a profound impact on humanity.

The Massachusetts Institute of Technology's Technology Review

magazine conducts a yearly contest for such youthful innovators and in the past has honoured such people as Google founders Sergey Brin and Larry Page and Netscape co-founder Marc Andreessen.

The Canada-based pair were chosen from about 600 nominations to join winners from 13 other

countries who will be honoured at a ceremony in Boston on Sept. 29.

"These aren't highly publicized awards, so it's not about your PR firm sending in information," said Kristen Collins, a spokeswoman for the magazine.

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Two lauded as research leaders

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"It is really about having influenced somebody or worked with somebody who has deemed you to be so extraordinary they go out their way to put in this nomination."

While tickled at being recognized, the two Canadian-based winners are much more excited about the research that got them noticed than being denoted leaders of the world's emerging technological elite.

In addition to trying to develop computer techniques that imitate the painting of great masters, Prof. Hertzmann, 30, has been working on programs that increase the speed at which complicated animations of any kind can be generated. The U.S.-born researcher, who was hired by U of T in 2003, points out that a 30-second frame in the film *Toy Story* could have taken an animator as much as a week to create.

"We are trying to do things 50 times faster," he said. Added to this is other research that attempts to allow a single change in animation — say the movement of a hand — to generate other body movements, without the animator having to fully sketch them in.

But his holy grail is the merging of live-animation films and high art. "What we want is a full-length feature film that looks as if it has been painted or drawn by an individual

'What we want is a full-length feature film that looks as if it has been painted or drawn by an individual artist.'

artist." While Rembrandtland is the ultimate goal, Prof. Hertzmann has already generated computer simulations of work by Van Gogh, Manet and Lucien Freud.

As to being recognized, "It's very charming," Prof. Hertzmann said. But he adds that he worries about the envy factor such an award can generate. "It is sort of dangerous to get these awards, especially if you are not acknowledged as the old master that everyone respects and looks up to ... but well, ultimately I'm not complaining."

Dr. Scott, 33, who was born in Ontario and educated at the University of British Columbia, is capitalizing on research she did to get her PhD. The five patents she has been granted spawned Inimex Pharmaceuticals Inc., a Vancouver company that uses artificially generated molecules that boost the innate immune system. This is the half of the immune system that swings into operation before the antibodies and white cells widely associated with the body's natural defensive reaction kick in.

"What I tell people at parties is

what I am working on is a new kind of antibiotic, one you take to generally boost your own immune system rather than anything that operates on specific bacteria," she said in a telephone conversation from California where she was promoting the company.

Because they pump up the body's generalized response, her company's drugs may not eventually generate the drug resistance associated with today's antibiotics. If all goes according to plan, Inimex — which was founded in conjunction with two of the UBC professors Dr. Scott studied under — will begin clinical trials with the immune-system pep pills in two years.

Dr. Scott confessed that her initial reaction to the award was a large "Oh, no," because providing background material for MIT meant she would have to take time off from what has become an almost impossibly busy schedule. Dr. Scott has been combining her laboratory work with raising a three-year-old child and trying to get her pilot's licence. But now she is happy with the publicity her science is getting.

"What is exciting is that where I do research is such a new area, and the award shows people are just starting to look at it, see potential and say, 'Yeah, yeah, that might actually work,'" she says, adding that she is so busy she might not make it to Boston to accept her award.

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