

# Ideas on the Edge



*Dr. Michael Duncan (centre) in front of a virtual streetscape, developed with the assistance of Alex Krugel and Rob Teather.*

## Street Smart

VIRTUAL REALITY TECHNOLOGY FROM NIAGARA COLLEGE PUTS A POWERFUL TOOL INTO THE HANDS OF ENGINEERS AND PLANNERS.

“People were angry.”

Dr. Michael Duncan of Niagara College is describing the mood of a public meeting held several years ago in the town of Beamsville. The town was planning to widen one of its main thoroughfares, Ontario Street, and a group of citizens was up in arms about the potential effects. The meeting was designed to give the firm in charge of the project, Delcan Engineering, an opportunity to present its plans—and citizens an opportunity to air their concerns.

“Normally,” explains Dr. Duncan, “if people are mad at the beginning of a presentation like this, they’re still mad by the end of it.” But instead of relying on the usual abstract drawings, Delcan showed a three-dimensional, virtual reality model of the proposed new streetscape, created by

Dr. Duncan and his colleagues at Niagara College—and funded in part by an investment from the Ontario Innovation Trust. The model allowed citizens to stand on their own virtual “door steps” and see what the changes would look like.

With this unique new perspective on the plan, residents were able to see that the impact of the project would be much less than they had feared. Within a short time, angry questions were replaced by happy conversation and even laughter. “When people can see stuff,” Dr. Duncan says, “good things tend to happen.”

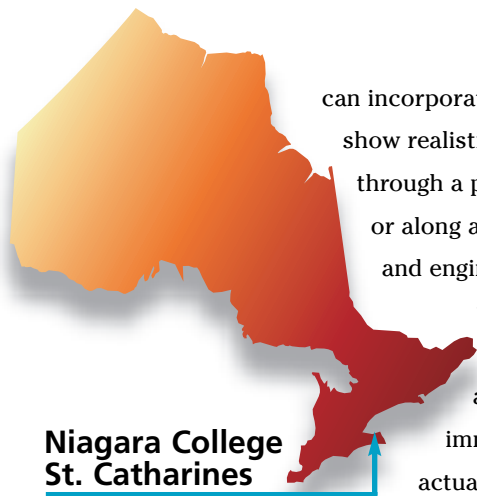
The power of visualization wasn’t lost on Delcan either. “The effect on them was electric,” Dr. Duncan remembers. “They’d found a way to get past these kinds

of presentations that normally didn’t go well for them.” The firm has subsequently employed the approach on several other projects, and has helped support further research and development at Niagara College.

The technology has also come a long way since Beamsville. The Ontario Street model was static, but now the software

### RESEARCH THAT MATTERS REAL-WORLD BENEFITS FOR ONTARIANS:

- improved land-use planning
- improved citizen participation in planning decisions
- jobs and prosperity in the future by strengthening Ontario’s leadership in the global information economy



### Niagara College St. Catharines

can incorporate traffic data to show realistic cars moving through a proposed intersection or along a highway. Planners and engineers can experiment with different options for road designs, and see the results immediately in terms of actual traffic flow. Dr.

Duncan and his Niagara College colleagues are also pursuing new research, again partly supported by the

**Project:** Virtual Reality Technologies for Land Use Planning  
**Institution:** Niagara College  
**Research Discipline:** Engineering/Information Technology  
**Principal Investigator:** Michael Duncan  
**Trust Investment:** \$343,635  
**Total research investment from all sources:** \$962,313

Ontario Innovation Trust, that will enable them to add realistic people to their virtual reality scenarios, using pedestrian data.

By finding a better way to put moving cars—and people—into a virtual world, Niagara College is putting Ontario onto the map in the very real world of the global information economy. Engineering firms like the



American giant Parsons Transportation are becoming enthusiastic users of the new technology. “I can’t reveal the details,” Dr. Duncan says, “but we have a very, very exciting project going on in the U.S.”

**CITIZENS COULD STAND ON THEIR OWN VIRTUAL “DOOR STEPS” AND SEE WHAT THE CHANGES WOULD LOOK LIKE.**



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### Infrastructure for Innovation About the Ontario Innovation Trust

The Ontario Innovation Trust was created in 1999 by the Government of Ontario to invest in research equipment and facilities at Ontario’s universities, colleges, hospitals and other non-profit research institutions. The Trust is governed by a volunteer Board of Directors, according to the terms of a Trust agreement established by the Ontario government. A small permanent staff looks after day-to-day operations.

Since its inception, the Trust has committed almost \$843 million to strengthen Ontario’s position in the global marketplace of ideas. This represents more than a third of the \$2.44 billion in total funding that has been invested in Trust-supported projects.