For immediate release
June 4, 2007

Using 3D tools to propose waste decontamination method

Science fair winner presents findings at Ontario research and education conference

TORONTO - A 17-year-old high school student from École secondaire catholique Sainte-Marie de New-Liskeard is traveling to Toronto to present his award-winning science project - a method of naturally decontaminating wood waste – at the Ontario Research and Education (R&E) Summit, which starts today in Toronto.

The winner of the first annual *EXTREME* Virtual Reality (VR) Science Fair has been invited to present his findings to an audience of senior scientists, researchers, educators and senior officials at the MaRS Collaboration Centre, June 4 and 5.

Grade 12 student Alexandre Harvey of Temiskaming Shores in northeast Ontario, used open source 3D modeling software to illustrate the results of his research in developing a method to naturally decontaminate wood waste at a recently closed forestry processing facility. The owners of the plant are proceeding with a detailed design phase to implement his findings, eliminating the need to ship waste water to southern Ontario for decontamination.

“I am pleased to congratulate the winner and all the participants of this year’s *EXTREME* VR Science Fair. These exceptional students represent our next generation of researchers, inventors and technologists,” said Premier and Minister of Research and Innovation Dalton McGuinty. “Their talent and imagination will ensure Ontario continues to grow more innovative, more productive and more prosperous.”

The science project makes use of the new, state-of-the art Timmins Virtual Reality Studio, an innovative visualization space established and managed by Sudbury’s Mining Innovation, Rehabilitation and Applied Research Corporation (MIRARCO). The *EXTREME* VR Science Fair is funded in part by the Government of Ontario’s Youth Science and Technology Outreach Program (YSTOP).

“This has been an incredible pilot year,” commented Jane Djivré, *EXTREME* VR Project Coordinator, “We saw kids enthused about learning and exploring new technology to interpret and communicate their findings - it opened our eyes to the potential of using VR and open source software, not only for geological interpretation and mine planning, but also as a tool to educate and interest youth in scientific research.”

“Our young people represent the innovators and science leaders of tomorrow,” said ORION President/CEO Phil Baker. “We are very proud to host the Science Fair winner and help showcase his imagination and talents in science and engineering,” he said.

The annual Ontario R&E Summit brings together leaders and innovators in research and education, showcasing next-generation collaborative tools and technologies. The winning project will be presented at a session on Youth and Science, chaired by TVOntario CEO Lisa De Wilde.

MIRARCO led the *EXTREME* VR Science Fair project, along with partners Science Timmins, the Timmins Public Library and PDAC Mining Matters. The goal is to match secondary school students with expert mentors and engage them in fun yet challenging activities in science and engineering using large-scale virtual reality. Learn more about the science fair at http://extremevr.mirarco.org.

About MIRARCO
MIRARCO is a not-for-profit R&D company owned by Laurentian University, specializing in the natural resources industry, energy and the environment. MIRARCO assists companies and municipalities of all sizes in solving problems through innovative applied research, using customized teams of scientists, engineers and University / College student researchers. www.mirarco.org

About ORION
The Ontario Research and Innovation Optical Network (ORION) is Ontario's ultra high-speed research and education network which connects all of Ontario's universities, most colleges, several medical and other public research facilities and a growing number of school boards to one another and to the global grid of research and education networks. Stretching 5,800 kilometres and connecting 21 communities throughout Ontario, ORION provides advanced connectivity to over one million Ontario researchers, scientists, students, teachers and staff, and provides critical infrastructure for research, education and innovation. www.orion.on.ca.

- 30 -

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Backgrounder

***EXTREME* VR Science Fair Entries**

Alexandre Harvey, a grade 12 student at École secondaire catholique Sainte-Marie in New Liskeard, is the winner of the 2007 *EXTREME* VR Science Fair.

Using 3D visualization technology, the 17-year old was able to research, propose and illustrate a new method of naturally decontaminating wood waste from a local landfill site. The project has led the owners of the sawmill to implement the student's proposal for an environmental cleanup of the site.

Alexandre's science project focused on the development of a natural means of detoxifying runoff water from a forestry products waste site. The goal of the project which included research lab work and 3D modelling of the site was to create an effective means of locally removing the ammonium from the waste water by creating a number of oxygenated holding ponds and filtering the water through new wetlands. This combination of collection, retainment and natural filtration provide an alternative to the current solution of collecting the runoff and trucking it to southern Ontario for decontamination.

In addition to finding a solution to the long term decontamination problem, runoff is expected to continue for 200-300 years, decreasing green house gases by eliminating trucking of waste water, Alexandre's proposal places a new wetland habitat next to a proposed nature trail.

The quality of his work and the short economic payback of the process have resulted in the owners of the plant continuing a detailed design phase to implement the results of Alexandre's research.

Alexandre's project has already won a Silver medal in the Earth and Environmental Sciences category of the 2007 National Science Fair in Truro, Nova Scotia, and the Canadian Stockholm Junior Water Prize (which includes a trip to Stockholm, Sweden).

Other entries included a project on understanding the 3D nature of gasoline molecules and their impact on the environment (grade 9 presentation from Smooth Rock Falls Secondary School), and a grade 7 experiment on the benefits of using 3D versus 2D diagrams to instruct the in the building of small-scale machines (Golden Avenue Public School, Timmins).

About *EXTREME* VR Science Fair

In 2006, the Ontario Government awarded MIRARCO funding towards a three-year project through the Youth Science and Technology Outreach Program (YSTOP) to expose youth to science through the compelling medium of Virtual Reality (VR).

Known as the "*EXTREME* VR Science Fair," this annual event pairs up high school students with mentors from academia, private sector, and not-for-profits. Students can explore any question in science, engineering or IT. They use the method of 3D modelling and the medium of large-scale VR to communicate their concept and discoveries.

This inaugural year, the competition was open to students in Northeastern Ontario; thanks to this project, the technology was used to present science in a captivating way to over 400 students.

The *EXTREME* VR Science Fair was carried out in partnership with Science Timmins, PDAC Mining Matters, and the schools of Northeastern Ontario.

For more information, visit http://extremevr.mirarco.org