

PRIX D'INNOVATION MANNING



MANNING INNOVATION AWARDS

INNOVATIS

Meet The Man Who Believes In Canadian Innovators

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"Imagination is more important than knowledge."

-Albert Einstein

He is a man who has fished with the Inuit and camped with the native Indians.

His honorary name is Chief Generous Heart – a name that couldn't be more appropriate for a man that has offered both time and money to encourage Canadian innovators.

In 1974, starting with just a small staff of four, Dave Mitchell built the Alberta Energy Company (AEC), a large oil and gas corporation that now has a staff of more than 800 employees in addition to 27,000 registered shareholders.

Six years later, Dave Mitchell decided to launch a national organization dedicated to recognizing and supporting Canadian innovators.

Using private funds and corporate sponsorship, he established the Manning Innovation

Awards, a non-profit foundation.

"I knew and respected Ernest Manning so I asked if he would allow his name to stand," Mitchell says.

Alberta's former premier said yes and the first award was presented in 1982.

Over the years, Dave Mitchell has led an accomplished and interesting life both inside and outside the corporate world.

He has served on distinguished boards such as Air Canada, Bank of Nova Scotia, Hudson's Bay Company, Lafarge Canada, and the University of Calgary.

Currently, he is Chairman of the Calgary Police Commission as well as Chieftain International.

But after 17 years, he is still in awe of the more than 100 innovations that the awards program has supported.

"In my mind, I can still see every inventor," he says

with a smile.

"And I am greatly impressed at the depth of talent in Canada," he adds.

To date, the Manning Awards have honoured Canadian innovators with more than \$2.3 million dollars in prize money, which includes an annual Principal Award of \$100,000.

Seven years ago, the awards were modified to include a new category for young Canadian inventors, with winners selected from the national Canada-Wide Science Fair competition.

It is in these young hands that Mitchell believes the future lies.

"This next generation will look back and think that our growth was stodgy," he says.

"We haven't seen anything yet," he adds.



Mutations 'R' Us

Montreal science student Xing Zeng's invention has not only garnered international attention but has also won a \$4,500 Young Canadian Innovation award, a science fair gold medal in the senior Computing Technology division and the NCR Canada Ltd. special award.



Xing Zeng

Zeng's awards recognize her work in developing a database for the rapidly growing volume of genomic variation data.

Her database, the HEXAdb, captures, stores and releases information on mutations in the nucleotide sequences of human DNA.

To create her database, one of only four in Canada, Zeng added a 3-D modeling

component that maps HEXA structure, resulting in a computer database that is the first to combine these two types of technologies.

Eventually Zeng hopes to participate in research into the tragic Tay Sachs disease, a mutation of the gene HEXA that results in a defective enzyme that often kills patients before age five.

Zeng says she hopes this innovation will lead to a wide application of her leading edge database.



About the Manning Young Canadian Innovation Awards...

The Manning Awards Foundation issues a number of awards each year, including \$500 to each of eight winning projects.

Of those eight projects, four are selected to receive an additional award of \$4,000, bringing their total award to \$4,500 each.

All winners are selected from entries in the national Canada-Wide Science Fair competition, held each year in a different city across Canada.

On Dangerous Ground



3-D Radar Locates Landmines

Grade eleven inventor, Kyle Doerksen of Calgary, has successfully incorporated three dimensional imaging into ground penetrating radar.

In addition to his \$4,500 Manning Award, Doerksen also won a science fair gold medal in the senior Computing Science division as well as the Geological Association of Canada's special award.

Ground penetrating radar (GPR) uses electromagnetic waves to probe beneath the surface to detect metallic and

non-metallic irregularities. However, current GPR does not include the capacity for three-dimensional imaging.

Doerksen tested his system, using data collected in Cambodia to detect buried landmines.

While current GPR was only able to detect 60 percent of the landmines in the sample, Doerksen's innovative 3D GPR was able to detect in excess of 90 percent of the mines.

Other applications include archaeology, geology, forensics and mining.



Kyle Doerksen



The Manning Innovation Awards, named in honour of the late Ernest C. Manning, former Alberta premier and senator, recognize Canadian innovators for their outstanding achievements and contributions to Canadian society. The Alberta Energy Company Ltd. and Petro-Canada are proud sponsors of the Young Canadian Innovation Awards program.

We're On The Web
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'A Rose By Any Other Name'

Odor Control Breakthrough For Hog Farms

Alberto Da Rocha and Joe Barfett, students from London, Ontario, have won a \$4,500 Young Canadian Innovation Award for their nose-saving invention.

"Hog farms emit pollutants which result in a bad odor and may cause possible environmental and health side effects," says Barfett.

"We wanted to reduce harmful emissions and find a solution that could not only be applied to hog farms, but to our growing livestock industry Canada

wide," adds Da Rocha.

Using a foam fractionator or protein skimmer, the innovative pair were able to remove the odor producing compounds from hog manure slurry and then convert them into nitrite which has value as a fertilizer.

The fertilizer can then be used for other purposes.

"This technology has additional applications in the mining industry where they also use ammonia nitrate."

The team also analyzed

the data they collected and created a proposal for building a working prototype that would control large scale hog farm pollutants.

"We think we can convert and recycle wastes using foam fractionation."

In addition to the cash award, they also won two special awards from the Agriculture Institute of Canada and Agriculture and Agri-Food Canada.

Plus, they have won a gold medal in the senior Earth and Environmental Sciences division at the Canada-wide science fair.



Alberto Da Rocha and Joe Barfett

"The person who says something can't be done is often interrupted by the person doing it."

- author unknown

Better Batteries

The Toronto team of students Robert Quick and Elena Andreeva have succeeded in producing better batteries, thanks to their innovative use of computer software.

And as a result, they have won a \$4,500 Manning award for their project.

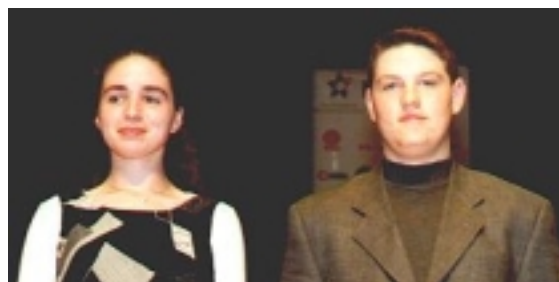
The duo created a computer software application that successfully monitors battery life and recharges batteries through a normal computer.

"This is different from anything that is already out there," notes Andreeva.

"It monitors the life left in a battery, it can charge or discharge (the battery) and it provides a shock that can

reduce crystalline buildup, thus allowing a battery to be completely recharged."

"That's something that has never been done before," adds Quick.



Elena Andreeva and Robert Quick

Andreeva and Quick's computer program also allows the battery's diagnostic information to be visible on a typical computer monitor.

Batteries are hooked up using a data acquisition card which allows depleted batteries to be successfully charged while also monitoring the progress on-screen.

"We're a good team," says Andreeva, who combined her knowledge of chemistry with Quick's electronic and computer science interests.

"We knew this could be done and we hope it will mean that more batteries can be reused and recycled."

And that is good news for the environment and for consumers everywhere.



Bright Minds, Bright Futures

Each winner receives a \$500 Manning cash award for these great ideas!



Virtual Keyboard

Student Jeremiah McCarthy has won a silver medal and the Intel of Canada Ltd. special award for his pseudo-physical input device.

McCarthy has created a way to stimulate physical devices like a mouse or keyboard, in virtual space.

McCarthy's prototype is a set of gloves, which are wired to the computer, creating a virtual keyboard.

"You can load any keyboard, for example French or German, so I think this technology has applications internationally," say the central Newfoundland computer enthusiast.

"Kids of any age can wear the gloves, so it doesn't matter about the size of your hand."

"And I think it may eliminate carpal tunnel syndrome because your hands need never be on the keyboard," he says.

Microwaved Agriculture

Grade 11 student Janine Keith won a silver medal for her project which explored the use of microwaves to irradiate soil, kill weeds and eliminate pests.

By using microwaves, Keith's project potentially replaces harsh pesticides.

"Heat kills just about anything, so I decided to try using it on soil samples," says the Armstrong, BC, resident.

Using a 500-watt microwave to test small soil samples on her family's Saskatchewan farm, Keith discovered pests and weeds did not survive.

Tests on naturally occurring friendly bacteria in the soil showed that they were not destroyed when microwaved for reduced periods of time.

"Next year, my father is going to give me a plot to test my theories further," she says.

Hot Starts for Cars

Students Peter and Katalin Mayer of Calgary, AB, won a silver medal and a special award from Natural Resources Canada.

The Mayer team has developed a hot start system for automobiles that reduces the amount of time it takes to warm up a car in extremely cold weather, potentially reducing engine damage.

The pair started working on their hot start system three years ago, using an insulated reservoir to store engine

coolant, thus preventing heat from dissipating on cold days.

Currently, the system uses 40 litres of coolant stored in a tank that fits under the passenger seat of an automobile.

Bathtub Water Monitor

Student Lisa Kay, from Edmonton, AB, received a science fair honourable mention for her invention, the Advanced Automatic Bathtub Monitor.

This device prevents bathtubs from overflowing by sounding an alarm and shutting off the water supply when the desired water level is reached.

Her project is a direct result of her experience at last year's science fair, where she exhibited the device's predecessor.

"At that time, I was using a mercury switch to regulate the water level. The judges suggested that I look at something that was a better alternative. So I decided to use a pressure switch," says Kay.

Building on her previous concept, Kay has successfully redesigned the device.



*"When inventors
make new discoveries
they never say
Eureka!
They usually say...
that's funny."*

*-Isaac Asimov,
author and scientist*

About Youth and Science . . .

The 1999 Canada-Wide Science Fair was held in Edmonton, Alberta, in May.



The week-long CWSF featured over 400 participants in more than 328 exhibits from across Canada. It was the culmination of a community level science process that involved over 500,000 participants.

Next year's science fair is planned for the month of May in London, Ontario.