

**Andrew Roberts, Marc Kennedy, and Alex Nequest** completed the stand-alone inverted pendulum project while undergraduate students in electrical engineering at Lakehead University, located in Thunder Bay, Ontario. After completion of their degrees, the groups degree project was entered into the IEEE/Telus Innovation competition and were subsequently awarded 1st place and \$10,000 CAD for their design. The group was also awarded the IEEE Life Member Award for the best student paper in Western Canada for a paper based on the project.

Currently, Alex Nequest is employed with Laipac Technologies in Richmond Hill, Ontario. Marc Kennedy is employed with Research In Motion in Waterloo, Ontario. Andrew Roberts is continuing at Lakehead University in the Master of Science in Control Engineering program, under the supervision of Dr. A. Tayebi. His current research and thesis focus are the stabilization and control of vertical take-off/landing unmanned airborne vehicles.

**References**

- [1] M.W. Spong & M. Vidyasagar, "Robot Dynamics and Control", John Wiley & Sons, 1989.
- [2] K. Ogata, "Modern Control Engineering", Prentice Hall, Upper Saddle River NJ, 2002.
- [C] Cowan, J., Erickson, C., Zlatanovic, A, "Computer Based State Feedback Control of a Double Inverted Pendulum", Lakehead University, 2004.



2005 IEEE Canada TELUS Innovation Award recipients, L-R: Andrew Roberts, Alex Nequest & Marc Kennedy, Lakehead U.; presented by Bill Kennedy, IEEE Canada Past-President & Ibrahim Gedeon, Chief Technology Officer, TELUS.

**Tesla honoured with Niagara Falls monument**

NIAGARA FALLS - When Nikola Tesla was a young boy in Serbia, he envisioned drawing power from Niagara Falls. Now, the inventor of alternating current has a permanent tribute overlooking the Horseshoe Falls: a monument unveiled September 3, 2006.

Members of St. George's Serbian Orthodox church have donated a bronze statue of Tesla, who has national hero status in his homeland. They wanted to create a lasting tribute on the 150th anniversary of Tesla's July 10 birth. "He's someone the Serbian community feels has been, if not neglected, certainly overlooked throughout history," said Dushan Kolundzic, the president of St. George's church.

As a boy, Tesla saw a picture of the Horseshoe Falls in a travel book and told his uncle he wanted to put a wheel under the falls to harness the power of the moving water. The new statue stands at the same point where that photograph was taken. "Having him here at the Falls is extremely important, because it captures the complete circle," Kolundzic said.

The 2,000-pound statue shows Tesla in a long overcoat, carrying a top hat in his left hand. In his right hand, he's carrying a cane, depicting the moment he conceived of alternating current by drawing diagrams on the ground. He's standing atop an AC motor, one of the 700 inventions he patented. The motor is similar to the "Teslatron" statue in the Fallsview Casino's entrance, which also pays homage to the inventor.

The Tesla monument's total price tag could be \$220,000 by the time the bills for a concrete foundation and landscaping come in, Kolundzic said. An international design competition led to more than 20 submissions; the judging committee liked one that came from Hamilton artist Les Drysdale. "The honour of being chosen to alter the landscape of the Niagara Parks is incredible. Who gets to do that?" said Drysdale.

Drysdale wore a T-shirt with Tesla's picture as "the man who powered the world," as he supervised the placement of the statue. The Niagara Parks Commission doesn't have many statues in Queen Victoria Park, but Tesla is a fitting addition,

said Debbie Whitehouse, the executive director of parks. "The history of Niagara Parks and hydro-electricity are entwined together. You see that everywhere you go in the Niagara Parks."

Drysdale's statue captures Tesla's spirit, said Bill Auchterlonie, who led the church's statue committee. The inventor often appeared in photographs looking "serious, as if he was day-dreaming, look in his eye," Auchterlonie said. "He's got Tesla. You feel like your looking at Tesla. ... He may be standing on this generator. His mind is a million miles away."

Celebrating Tesla's accomplishment is a big deal not just for Serbian-Canadians, but back in his native land as well. A news crew from Serbia's national broadcaster was in Niagara Falls filming the statue's installation and its unveiling. Belgrade's airport is being renamed in Tesla's honour and the statue that finished second place in St. George's competition is being erected at the airport.

The IEEE hands out annually the IEEE Nikola Tesla Award to an individual or a team that have made outstanding contributions to the generation and utilization of electric power. Search for "Tesla" at <http://www.ieee.org/>. Submission deadline is January 31st.

There have been four Tesla Awards given to Canadians in recent years: Gordon R. Slemon (U.Toronto, 1990), Thomas H. Barton (U.Calgary, 1992), Prabhaskar Kundur (Powertech Labs, Surrey, BC, 1997), Paul Dandeno (U.Toronto, 1998). The 2006 IEEE Tesla Award went to Konrad Reichert (ETH Zentrum, Zuerich, Switzerland).

**To note:** Nikola Tesla was awarded the IEEE Edison Medal (the AIEE Edison Medal at the time) in 1917. His acceptance of the award was surprising in view of the deep animosity between the two pioneers. The medal went missing after Tesla's death in 1943.

**1 N.Ed.** Nikola Tesla is claimed as a hero both by Croatia and Serbia; he was born in a minority ethnic serb village in Croatia. He is quoted as having claimed to be "equally proud of my Serb origin and my Croatian homeland". Both communities are, in return, equally proud of him.



Artist Les Drysdale, of Hamilton, created this monument to Nikola Tesla. It is in place at Queen Victoria Park. Photo courtesy of the Niagara Falls Review.

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