

The TISP Canada Courier #3



Photo credit: Leigh Day



Photo credit: Jennifer Ng Ain Kin



July 28, 2012

TENTH TISP ANNIVERSARY TOASTED AT TAMPA

Delegates from 12 different countries congregated at Tampa, Florida, for an international symposium on IEEE's TISP. Dave Hepburn provided this report for the *TISP Canada Courier*.

To mark the 10th anniversary of the inauguration of the IEEE Education Outreach program, the TISP group held a two-day International Symposium "Pre-University Teacher Training" in Tampa, Florida, on May 19 and 20, 2012. It was an eclectic mix, with 12 different countries being represented, literally from *a* (Argentina) through *z* (Zambia). There were seven of us from Canada. Luminaries

included Dr. Moshe Kam, last year's IEEE President, together with Dr. Doug Gorham, Ms. Yvonne Pelham and Ms. Lynn Bowlby from IEEE headquarters in Piscataway.

Although the idea of a two-day conference in Tampa may sound glamorous, I think all participants would agree that we had to earn our keep. The conference started at 08.00 hrs. sharp each morning, and we were kept hard at it until 6.00 PM in the evening. But as the speaker from Texas put it – "If it ain't fun, we don't do it." The various "Addresses of Welcome" were kept to a bare minimum, the other activities were, without exception, highly thought-provoking and constructive. In particular, Dr. Kam in his Keynote Address raised the question of how can we realistically measure whether or not we are really reaching the students? We also noted that Dr. Kam raised the matter of how we can obtain reliable and secure funding for our TISP activities. We are going to have to think hard and long about both these matters.

(continued on page 3)

Content

Issue #3

July 28, 2012



	Page
Tenth TISP anniversary toasted at Tampa	1
Reports from the Regions	2
Putting TISP Canada on the map	2
Engineers engage at the Childrens' Museum	4
Have you tried www.tryengineering.org ?	6
National Engineering Month	7
Guidelines for Contributors, Editors	8

TISP Reports from the Regions

TISP Canada relies on active participation from all regions of the country. These columns report on recent work and upcoming events as well as trials and accomplishments of TISP volunteers across the country.

Stay tuned for renewed activities after the summer holidays!

Ontario

The Ottawa Section is in the planning stages for a special TISP event in July. The Section will be hosting a TISP workshop for 30 teachers from across the country at the Canada Science and Technology Museum as part of the teachers' Summer Institute. For further information on the workshop contact Janet Davis, Ottawa Section TISP chair at Janet.Davis@windriver.com

Nova Scotia

The winners of this year's Nova Scotia Engineering Month TISP competition will be taking part in the Dalhousie University's SuperNOVA summer camp programs, exploring topics in science, engineering and computer science through fun, hands-on experiments and problem-solving activities. For further information visit <http://supernova.dal.ca>

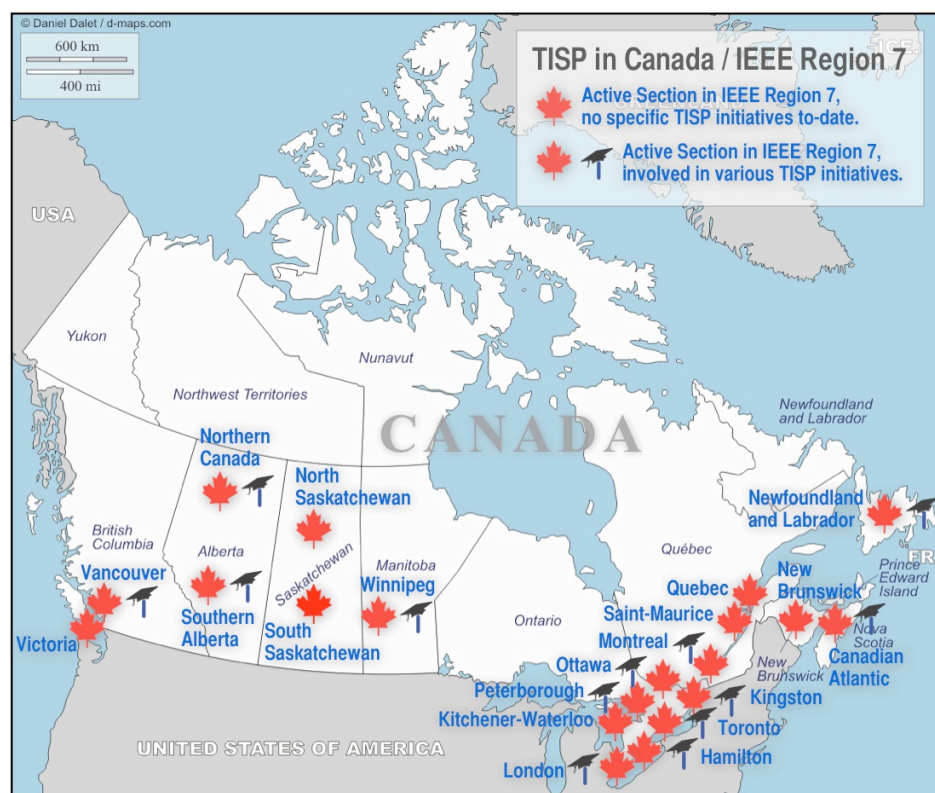
Putting IEEE TISP-Canada on the Map

TISP-Canada is part of a small but growing global network of IEEE's education and outreach programs. Canadian activities are thriving, and TISP champions can be found in many regions of the country.

IEEE Canada constitutes Region 7 of IEEE with many active Sections, as displayed on the map on the right.

Since 2009, the IEEE Teacher In-Service Program of Region 7, TISP Canada, has initiated activities across the country, and many Sections are promoting TISP through the work of TISP champions. Our goal is to involve all Sections.

Volunteers are encouraged to contact the Region 7 Sections directly through www.ieee.ca or contact the TISP-Canada Committee Chair, Dr. Anader Benyamin-Seeyar, at anader.benyamin@ieee.org.




(continued from page 1)

The program included two Group Activities, each of 90 minutes duration, and two Panel Discussions. The constructive new ideas that surfaced from these activities were truly amazing. By a rough count, based on suggestions brought in by participants, plus those that surfaced from the group and panel activities, probably more than 50 ideas for new lesson plans emerged. Perhaps some of the more important suggestion included:

- ◆ Biology and Anatomy (as they relate to medical electronics)
- ◆ Ethics
- ◆ Engineering Geology
- ◆ Economics
- ◆ Environmental Science
- ◆ Gender Equity
- ◆ Chemistry

It was also noted that once students leave High School, they mostly don't return to visit. Therefore it was suggested that those best placed to judge how well schools teach various subjects are the instructors teaching first year University classes.

These and the other suggestions are, or will soon be posted on the TISP website. There are also clear indications that, at least within Canada, interest in and usage of what we have to offer is now becoming widespread, particularly with STAO and PEO. In short, we have made solid progress over the last 10 years. See you in 2022! 

For further information contact Dave Hepburn at dehepburn@sympatico.ca

TISP Symposium summary of attendance:

1.	Argentina	1
2.	Brazil	1
3.	Canada	7
4.	Hong Kong	1
5.	India	6
6.	Malaysia	1
7.	Peru	1
8.	South Africa	1
9.	Tunisia	1
10.	Uruguay	1
11.	USA	26
12.	Zambia	1



The TISP symposium attendees engaged in fruitful discussion during their meeting in Tampa, Florida, in May 2012.



Yvonne Pelham of IEEE headquarters is leading a discussion group at the TISP meeting. (Photo credits: Jennifer Ng Ain Kin)

Engineers Engage at London Children's Museum

TISP Canada Courier contributor and co-editor Murray MacDonald shares his experience with engineering education outreach and programming in Ontario for National Engineering Month

For Canadian Engineering Month last March, London Children's Museum (LCM) was planning some new programming. The LCM staff originally were working with Tech Alliance, but when that didn't come to fruition, they turned to the local Institute of Electrical and Electronic Engineers (IEEE) and Professional Engineers of Ontario (PEO) – both conveniently led by myself. This occurred in late February, so there was just a week to put a program together for National Engineering Month. The Museum had already a room set aside for temporary displays, and staff members were also looking for weekend program activities, particularly for the final weekend of March. With the short time frame, we focussed on preparing some displays first, and then agreed to organize activities for Saturday, March 31.

After contacting a number of London businesses, most of whom could not put together a display on such short notice, we had two displays. Weiming Shen from the National Research Council came up with a “mummy display” showcasing imaging and prototype fabrication technology. Imaging of a mummy, without disturbing the artifact, had been used to fabricate a likeness of the skull and then to reconstruct the full head. This evidently was popular at the museum since many schools had previously visited the Egyptology displays.



The Regional Children's Museum in London, Ontario, venue of National Engineering Month activities earlier this year.



The mummy display cabinet at the London Children's Museum showcasing reconstructed skulls and heads.

The second display was from a local business, Sun Tap. They provided a sample of a solar collector panel and posters explaining use of the panel for solar heating of pools. Such an energy-themed display was also of interest. Both of these displays were available at the museum for the full month of March.

On Saturday March 31, I presented two activities from 10 o'clock in the morning until 3 o'clock in the afternoon. My past experience had been with Grade 7 and 8 classrooms, so there was some adjustment needed for the younger — and to a degree unpredictable — aged attendees. Both activities were well received by the students; but I also learned a lot and had to make more adjustments “on the fly.”


The morning session had much younger participants, ages five to eight. Both sessions were much less structured than a class with participants walking in and out on their own schedule – a real challenge. During both, I had a PEO video, “*Take a Look at Engineering*” running on a laptop for viewing by interested participants and parents.



Murray MacDonald and his helpers are getting organized to engage in a “*Building a Candy Bag*” contest at the LCM.

The morning activity was based on TISP lesson plan “*Build a Candy Bag*.” Participants were to design a candy bag and then build and test it for weight of candy held, and then test the safety margin with gravel. The younger age group skipped the “design phase” and jumped right into fabricating. The most success was achieved by their older siblings. Testing the bag turned out to be very entertaining! Needless to say, for many of the youngest, the biggest take away was a sample of the candy!

After noon, the second activity was initiated. It, too, was based on a TISP lesson plan. This one is called “*Building a Windmill*.” We modified this lesson plan to provide a propeller as the basis of the design. The “*Windmill*” plan was very popular, likely because of the fact that more of the older children came visiting during the early afternoon hours. Again, few focused on “design,” and many did the hair dryer testing twice with an adjustment step between tests. Overall, this activity was a great success. I even had a few parents build their own windmill, until I eventually ran out of material, which had been gauged to supply about 40 participants overall.

In post-event analysis, the London Childrens’ Museum is interested in repeating the engineering event next March. With more planning time, I would like to target a total of four displays that showcase local businesses in engineering, and then organize two weekends with “*Try engineering*”-type activities. Needless to say that this time I am looking for volunteers to help carry it off. Anyone interested? 

For more detailed information contact Murray MacDonald at murraymacdonald@ieee.org. You can also contact him by telephone at 519-859-8723.

Have you tried www.tryengineering.org lately?

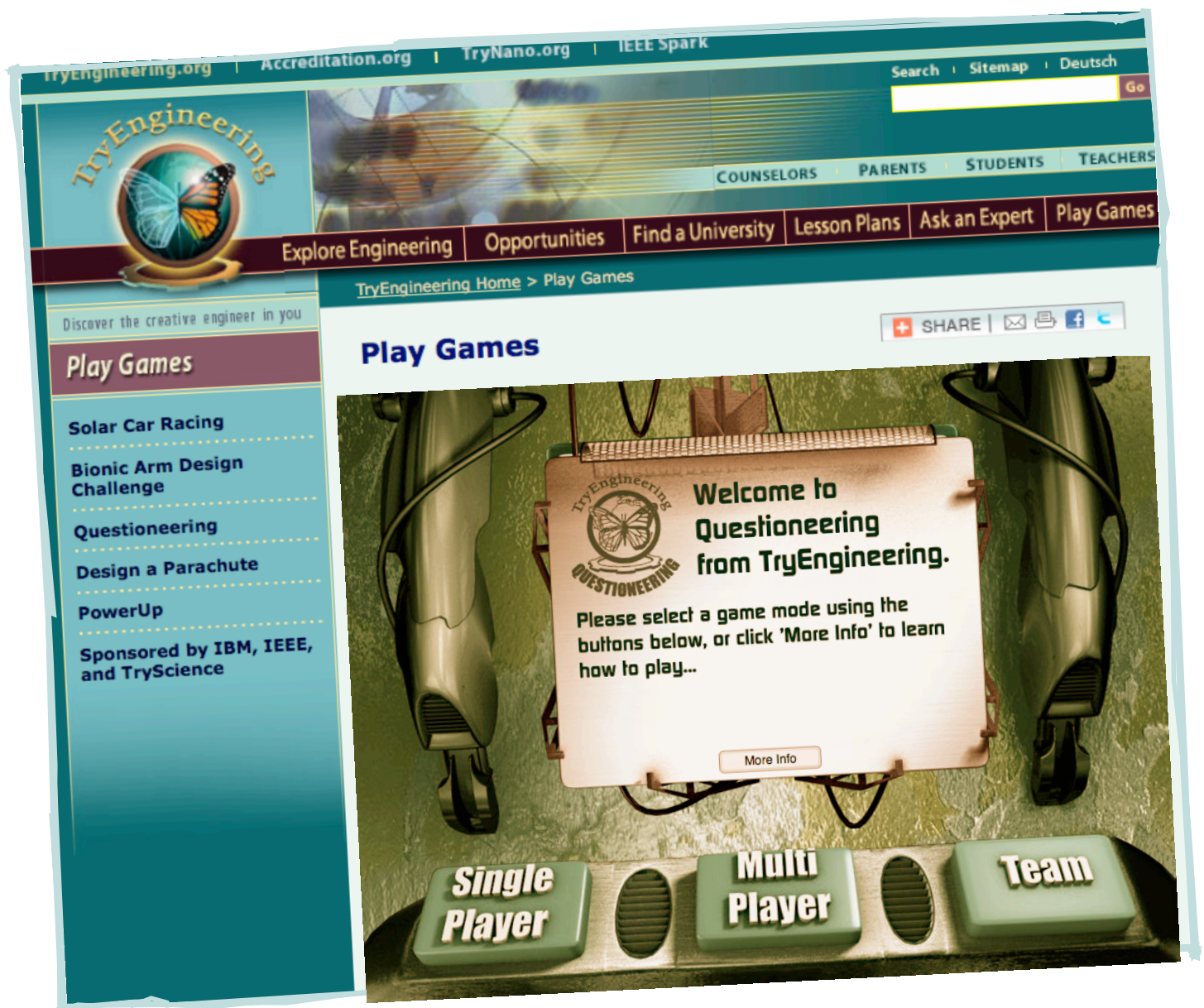
IEEE's source of information for counsellors, parents, students and teachers

Feature: "Play the game!"

Sometimes the best way to understand what engineers do is to try your hand at it! The tryengineering.org web site has links to several engineering games on the internet to give you a first hand try at the problem solving skills engineers employ every day. Virtually design and race a solar car! Save Planet Helios from

ecological devastation! Create a parachute both strong and light enough to safely slow the rovers in their descent toward Mars!

TryEngineering has engineering and career resources to help students learn about and prepare for exciting opportunities in engineering. For further details see www.tryengineering.org.



National Engineering Month

Nova Scotia TISP teams with engineers teachers and students for a public event

March marked Engineering Month, and on Saturday the 24th a major event took place at Mic Mac Mall, the largest of its kind in the region. Organized jointly by Engineers Nova Scotia, Dalhousie University's SuperNova Science Program, and — last but not least — the IEEE Canadian Atlantic Section's TISP Committee, various exciting competitions drew the attention of many shoppers and participating junior high and high school students.

Among the many displays of the engineering profession, there were two competitions in particular that drew a crowd: the 6th Annual Provincial Junior High Popsicle Bridge Challenge (photo at top) and the 1st TISP-sponsored Annual High School Design Competition (photo at centre). More than a dozen teams participated in the event. The sturdiest popsicle bridge took a load of more than 430 kg before it finally caved in.

The IEEE TISP robot arm design challenge featured winning designs, built on-site, by students from Auburn High School. The designs were judged by the Chair of the Nova Scotia Robotics Society of the IEEE (photo at bottom). The coveted First Prize for each of the two competitions was a place in Dalhousie University's SuperNova Summer Science Camp. The mall event garnered a lot of public attention - especially the crushing sound of popsicle sticks - and there was good cheer for all of the student teams and their fabulous project entries. 🎓

For further information contact Dirk Werle of TISP/Nova Scotia at dwerle@ca.inter.net



Stress tests for both bridges and students during the 6th Annual Provincial Jr. High Popsicle Bridge Challenge



Robot arms in the making at Mic Mac Mall during the 1st Annual High School Design Challenge



IEEE Canadian Atlantic Section member Dr. Mae Seto judging the entries in the robot arm competition

IEEE and TISP

The Teacher In-Service Program provides a forum for IEEE volunteers to demonstrate engineering, science and mathematics concepts by sharing their real-world experiences with local pre-university educators. IEEE offers workshops for its volunteers on how to provide in-service programs. Part of the IEEE mandate is to address declining interest of students in engineering. Towards this end, IEEE seeks to raise awareness of career opportunities in science and technology; one of its outreach activities has been helping develop on-line resources targeted to teachers, students and parents. The “TryEngineering” initiative involves IEEE, IBM and the New York Hall of Science. To-date, **TryEngineering.org** lesson plans have been downloaded more than 3 million times. The site has various great features, including a search for accredited university and college programs in many countries, including Canada. A new **TryComputing.org** portal will be launched in the near future. More information is available at www.ieee.org/education_careers/education/preuniversity/tispt.

Some Guidelines for Contributors

The *TISP Canada Courier* is issued quarterly by the TISP Canada committee of IEEE Region 7, primarily in electronic form. Articles and news items are welcome and should be sent via email to the Editors. The *Courier* accepts feature articles up to a length of 1000 words with suitable illustration material. Smaller news items should not exceed 500 words in length. Notices for upcoming events should be submitted in a timely fashion keeping in mind the publication schedule (Spring, Summer, Fall, Winter). Although the editors will usually consult with contributors regarding any significant change to material submitted, the *Courier* reserves the right to publish such material with any changes necessary to meet space requirements, or as otherwise deemed necessary. Current and back issues of the *Courier* are available free of charge and may be retrieved at www.tispcanada.ca.

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