

Technologist

Includes information for the Syracuse Sections of the IEEE and the NSPE

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NYSAPLS - NYS Assoc. of Professional Land Surveyors	Robert S. Green	Chair	428-4358
NYSATE - NYS Association of Transportation Engineers	Mary Clements	Pres.	428-4627
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SBE - Society of Broadcast Engineers	Vincent Lopez	Pres.	472-6800
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SME - Society of Manufacturing Engineers	Sam Waite	Chair	432-0700
SWE - Society of Women Engineers	Susan Weaver	Pres.	432-0506

The Technology Alliance of CNY has been reporting on technical excellence since 1903.

Vol. 8 No 4

December 2005



The Syracuse Section of the
Institute of Electrical and Electronics Engineers
www.ewh.ieee.org/r1/syracuse



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www.CNYPE.org



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The Technology Alliance of Central New York
www.TACNY.org



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Syracuse Section - Syracuse, New York



1. Virtual Conference Gets Careers in Gear

How does the quality of online degree programs stack up against traditional degree programs? Does an engineer really need an MBA? Is it important to your career to belong to a professional association? A panel of experts tackled these and other topics at a Web seminar called the Career Accelerator Forum, hosted by IEEE Spectrum magazine.

2. Now Playing on IEEE Spectrum Radio: Iraq Reconstruction

Just back from Iraq, Glenn Zorpette, IEEE Spectrum's executive editor, interviews Army National Guard Col. Frank Gonzales about efforts to reconstruct Iraq's electric power grid. Listen now at <http://boldfish.ieee.org>

3. IEEE Member Applies Brain Power to Power Control

An electric power grid generally consists of generators, substations, and lots and lots of transmission lines. It is an intelligently designed system, to be sure, but is not intelligent by itself. At least until recently, a power grid could not, for example, learn from its mistakes and avoid repeating them; nor could it repair itself after a failure. Not until, that is, IEEE Senior Member Ganesh Kumar Venayagamoorthy started applying theories of computational intelligence to the field.

4. Mumbai Student Branch Wins Web Site Competition

A multifunctional Web site designed by an IEEE student branch in India took first prize in the IEEE Student Branch Web Site Contest. The site, built by Vivekananda Education Society's Institute of Technology, Chembur, in Mumbai, known as IEEE VESIT, allows visitors with visual problems to get around. The site's designers included a wireless application, so that those with mobile phones can access the site, and the information on the site is translated into eight languages.

6. Giving Back to the IEEE

If the IEEE has had a positive impact on your professional life, consider making a donation to the IEEE Foundation. The foundation has more than 80 charitable funds that support a variety of educational, historical-preservation, and peer-recognition programs. Pick the one that best fits your personal interests, and make a gift.

7. Conference Focuses on Nanoelectronics

Make things small enough, and their properties -- physical, optical, chemical, electrical, and thermal -- change. Not only that, says Tan Cher Ming, general cochair of next January's IEEE NanoSingapore 2006 conference, but when you get down below 100 nanometers, "a lot of those properties become tunable: mechanical strength, melting point, electronic structure, chemical reactivity." NanoSingapore will concentrate on nanoelectronics, the first conference on this subject to be held by the IEEE in the country.

8. Proceedings From Computer Graphics Conference Now Available

The proceedings of the 2005 Computer Graphics International conference, which covered a diverse range of the latest innovations in computer graphics design and technology, is now available. The conference, which took place in June, featured papers in all areas of computer graphics, including geometric computing, image-based techniques, and human-computer interface. To purchase the complete proceedings of the conference, visit <http://boldfish.ieee.org>

BOOKMARK THIS!

Check out our Section Calendar at <http://www.ewh.ieee.org/r1/syracuse/cal.htm> for additions, updates and directions to meetings. This includes meetings that we have not been able to add to the Technologist due to scheduling. The Syracuse Section will add meetings for other organizations where IEEE members are invited and link to your web page. Don't have a web site for your organization? We will include the information on ours for related technical societies. Contact Don Herres at d.herres@ieee.org.

Those members who need to CHANGE CONTACT INFO on file with the IEEE, including e-mail addresses, should do so at:
<<http://www.ieee.org/membership/coa.xml>>

IEEE

CONTACT INFORMATION

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IEEE Regional Activities

SYRACUSE SECTION Meeting Information

Our Executive Committee Meetings are held on the first Friday of the month and are open to all members. Minutes are available online at <http://www.ewh.ieee.org/r1/syracuse/meet.htm>

Check out the all new Syracuse Section website:
<http://www.ewh.ieee.org/r1/syracuse/>



Event Calendar

December 8	1:30 PM	IEEE Syracuse AES/COM Chapter Joint with SU E&CS Dept.	369 Link Hall Syracuse University	Distributed Statistical Inference over Multi-access Channels Prof. Lang Tong
December 9	12:00 PM	IEEE Syracuse Section open to all members	C&S Engineers	Section Executive Committee Meeting
January 13	12:00 PM	IEEE Syracuse Section open to all members	C&S Engineers	Section Executive Committee Meeting
February 3	12:00 PM	IEEE Syracuse Section open to all members	C&S Engineers	Section Executive Committee Meeting
March 3	12:00 PM	IEEE Syracuse Section open to all members	C&S Engineers	Section Executive Committee Meeting
March 6	Dinner 5:30 PM Presentation 6:00 PM	IEEE Syracuse IAS/PES Chapter Joint with IAEI	LeMoyne Manor Liverpool	Motors and Motor Controls
April 7	12:00 PM	IEEE Syracuse Section open to all members	C&S Engineers	Section Executive Committee Meeting
April 24 - 27	see Conference Schedule	Sponsored by IEEE Aerospace & Electronics Systems Society and IEEE Mohawk Valley and Syracuse Sections	Turning Stone Resort & Casino	2006 IEEE Radar Conference
May 5	12:00 PM	IEEE Syracuse Section open to all members	Genesee Grande Hotel Syracuse	Section Executive Committee Meeting
August 18 - 20	8:00 start	IEEE Region I hosted by Syracuse & Mohawk Valley Sections	University Sheraton	Regional Board of Governors Meeting & Officer Training

**IEEE**

Syracuse University

Department of Electrical Engineering and Computer Science

Co-sponsored by the IEEE AES/COM Societies Syracuse Chapter

Seminar

Prof. Lang Tong
School of Electrical and Computer Engineering
Cornell University, Ithaca, NY 14853

Thursday, December 8, 2005
369 Link Hall, 1:30 p.m.

Distributed Statistical Inference over Multi-access Channels

Abstract We consider the problem of making statistical inferences using measurements of distributed sensors. Sensors transmit their local data over a noisy multi-access communication channel to a fusion center. The number of sensors involved in data fusion may be random, and their transmissions are subject to random fading. We propose the use of a Type-Based Multiple Access (TBMA) in which sensors with the same data type share a common transmission waveform, and the multi-access channel delivers a distorted sensor empirical distribution. We present algorithms and analysis of distributed detection and estimation using TBMA in asymptotic regimes where the (average) number of transmissions is large. In the absence of random fading or when channel state information is available at the transmitter, we show that TBMA coupled with an asymptotic maximum likelihood method is optimal. Effects of channel fading are quantified. For channels with zero mean random fading, the single-transmission TBMA does not lead to consistent inference, and multi-slot TBMA is necessary. For sensors with statistical duty-cycle schemes, insights into optimal wake-up strategies are obtained.

Speaker Bio Lang Tong is a professor at Cornell University. Prior to joining Cornell in 1998, he was on faculty at the West Virginia University and the University of Connecticut. He was also the 2001 Cor Wit Visiting Professor at the Delft University of Technology. He received the B.E. degree from Tsinghua University, Beijing, China in 1985, and PhD degree in EE from the University of Notre Dame, Indiana in 1991. He was a Postdoctoral Research Affiliate at the Information Systems Laboratory, Stanford University in 1991. He received the Outstanding Young Author Award from the IEEE Circuits and Systems Society, the 2004 best paper award from IEEE Signal Processing Society, and the 2004 Leonard G. Abraham Prize Paper Award from the IEEE Communications Society. He also received Young Investigator Award from the ONR. Lang Tong is a fellow of IEEE. Lang Tong's research is in the general area of statistical signal processing, communication systems, and networks. Using theories and tools from statistical inferences, stochastic processes, and information theory, his research group is investigating various practical problems that arise from broadband wireless systems, mobile ad hoc networks, and large scale sensor networks.



NEWS RELEASE

MOST*

NEWS RELEASE

*Milton J. Rubenstein Museum of Science & Technology, 500 S. Franklin Street, Syracuse, New York 13202
315-425-9068 PHONE 315-425-9072 FAX WWW.MOST.ORG

A project of the Discovery Center of Science & Technology

FROM: Ann Nagle, Director of Marketing and Public Relations
315-425-9068 x 2126 or anagle@most.org
Katherine Murphy, Public Relations Assistant

FOR IMMEDIATE RELEASE

**THEY'RE BIG, THEY'RE LOUD AND THEY'RE AT THE MOST--
Dinomania Opens for Thanksgiving Weekend
Sponsored by M & T Bank**

Dinomania, a traveling exhibit of realistic, robotic dinosaurs, will open November 23, 2005 at 11 a.m. at the Milton J. Rubenstein Museum of Science & Technology (MOST), located at 500 South Franklin Street in Syracuse's historic Armory Square. Dinomania last appeared at the museum in 2001 and was a huge hit; now Dinomania 2006 with all new dinosaurs in new environments is coming just in time for the Thanksgiving holiday weekend.

Containing moving, vocalizing dinosaurs from the sky-bound Pteranodon with a 25-foot wingspan to the land-bound Stegosaurus with bony plates on its back, the exhibit also offers interactive opportunities for visitors.

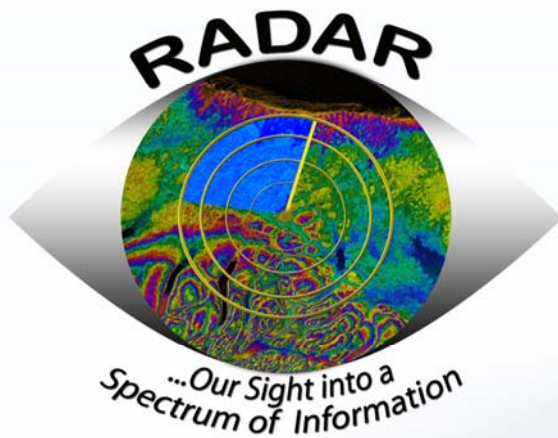
Children can become archaeologists hunting for fossils in the Dino Dig Box, visitors can create fossil rubbing prints using paper and crayons, and visitors can control an interactive T-Rex model to learn about the robotics that make the dinosaurs on exhibit so realistic.

At 12 feet tall by 22 feet long, Tyrannosaurus Rex will tower over passers-by, and will soon make its big-screen appearance in the IMAX movie "T-Rex: Back to the Cretaceous," set to open at the MOST's Bristol IMAX[®] Omnitheater Saturday, December 10, 2005.

Other dinosaurs on exhibit include the three to five-ton herbivores, Parasaurolophus, Ankylosaurus with two young, and Triceratops with two young.

The MOST is open Wednesdays – Sundays, 11 a.m. – 5 p.m. Museum admission is \$4 for adults and \$3.50 for children up to age 11 and seniors age 65+. For more information, call 425-9068 or visit the MOST Web site at www.most.org.

2006 IEEE Radar Conference



April 24 - 27, 2006

Turning Stone Resort
and Casino
Verona, NY USA

www.radar06.org

“Radar...Our Sight Into a Spectrum of Information,” Highlights the Connection Between Radar and Information. This Theme Provides an Interesting Perspective to Consider the Increasingly Wider Spectrum of Target and Environmental Information that has Evolved, Far Beyond the Original Capability to Detect the Target and Determine its Range, from Innovative Radar Research, Technology, and Component Development, for both Military and Civilian Applications.

For more information visit www.radar06.org



Sponsored by: Aerospace & Electronic Systems Society
Mohawk Valley IEEE Section
Syracuse IEEE Section

Logo background image courtesy NASA/JPL-Caltech.

**CENTRAL CHAPTER
NY STATE SOCIETY OF PROFESSIONAL ENGINEERS**

NEWSLETTER

DECEMBER 2005

President's Message - Mike Hayes, PE

We're still wrapping up the loose ends for the November 14, 2005 Engineering Expo, but do have preliminary information. The paid attendance was approximately 250 people. The speakers, format, and Holiday Inn received very positive comments on the surveys. So the event was a success, and we will be continuing this tradition in November 2006.

Most people who attended the Expo are interested attending similar events. So, we will definitely offer a multi-track "Mini-Expo", probably with 4 PDHs available, on Monday, May 15, 2006 (in addition to the main Expo next November). The Mini- Expo will be held in conjunction with the Celebration of Technology Banquet.

I spoke too soon in last month's message that only about a dozen people had signed up for our first "PDH lunch". The actual attendance reached 22, which is a good enough turnout to continue these lunch meetings as long as attendance warrants. I hope to have them at consulting firms in our area to help hold the cost down. **Our next "PDH lunch" will be held on Thursday, January 19, 2006 at C&S Engineers.** We'll have more details in next month's newsletter. The lunch meetings are all scheduled for the third Tuesday or Thursday of the month. The 2006 Expos will both be scheduled on Mondays.

I wish all of you a Merry Christmas and Happy New Year.

Calendar

Date/Time	Topic	Speaker	Location	Cost	Contact
1/19/06	TBD	TBD	TBD	TBD	Second in series of "PDH" luncheons.
2/21/06	TBD	TBD	TBD	TBD	Third in series of "PDH" luncheons. Date is tentative.
3/21/06	TBD	TBD	TBD	TBD	Fourth in series of "PDH" luncheons. Date is tentative.
4/18/06	TBD	TBD	TBD	TBD	Fifth in series of "PDH" luncheons. Date is tentative.
5/15/06	TBD	TBD	Holiday Inn, Liverpool	TBD	Mini-Expo & Celebration of Technology Banquet. Date & location are firm.

35 PDHS AVAILABLE!

MANUFACTURERS ASSOCIATION OF CENTRAL NEW YORK (MACNY) Strategies for the Use of Sustainable and Renewable Energy (SURE)

Strategies for the Use of Sustainable and Renewable Energy (SURE) is a certificate offered by the Manufacturers Association of Central New York (MACNY) in cooperation with the SUNY College of Environmental Science and Forestry (SUNYESF). Potential participants include designers, architects, constructors, and consulting engineers who want to learn more about the current technology and business applications of renewable energy systems including photovoltaics, wind power, biomass and conversion to biofuels, fuel cells and geothermal heat pumps. This certificate program was developed through a collaborative effort between business and academia to take advantage of this region's unique expertise and resources.

Certificate / Workshop Schedule

The SURE program schedule is designed with working professionals in mind.

Workshop Number 1: 1/13/06, 8am-4:30pm; Survey of Renewable Energy

Workshop Number 2: 1/27/06, 8am-4:30pm; Biomass, Ethanol and other fuels from Wood, Biodiesel

Workshop Number 3: 2/3/06, 8am-4:30pm; Photovoltaics

Workshop Number 4: 3/3/06, 8am-4:30pm; Fuel Cells and Geothermal Heat Pumps

Workshop Number 5: 3/24/06, 8am-4:30pm; Wind Power

All of the above workshops are at the Genesee Grande Hotel, 1060 East Genesee St., Syracuse, NY

Workshop Number 6: 4/28/06, 8am-4:30pm; Paper/Poster Presentation

This workshop will be at SUNY ESF (Marshall Hall Alumni Lounge).

Number 7, Optional Field Trip Day: 4/7/06, 8am-4:30pm at SUNY ESF & sites TBD

Cost for Certificate and Other Options

Option	Fee
Certificate (5 workshops) Registration received by 12/14/05	\$625
Certificate (5 workshops) Registration received on 12/15/05 or later	\$675
One (1) Day Workshop	\$145
Field Trip Day (Optional)	\$75

Engineers (PEs)

Attendees are expected to earn 7 Professional Development Hours (PDHs) for each workshop he/she attends for a total of 35 PDHs. Earned PDHs count toward the required New York State-mandated professional development training for engineers.

Application Procedures

MACNY Certificate information:

Susan Palé, Certificate Program Recruiter

315-469-1736 (phone)

sspale@pobox.com

www.reinventcny.com

NOT TOO EARLY TO APPLY FOR P.E. SCHOLARSHIPS

CNY Scholastic Achievement Awards

Once again the Central Chapter of the New York State Society of Professional Engineers will be sponsoring Scholastic Achievement Awards for Central New York high school seniors planning on attending a college engineering program. In the past we have awarded 2 or 3 \$1,000 awards. The deadline for receipt of the application is **February 17, 2006**. To be eligible for these awards, applicants must plan on attending an engineering program at a university or college that has been accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology (ABET – EAC). For information and a list of colleges and universities with this accreditation visit <http://www.abet.org>, for questions regarding this requirement please contact Tim Taber (TPTaber@stearnswheler.com).

Applications are available on the Central New York Professional Engineer Web Site at <http://cnype.org/Application.pdf>.

Child of NYSSPE Member Scholarships

The Foundation for Engineering Education- Past Officers Scholarship is again available. This scholarship is awarded to the child of a NYSSPE member, in the amount of \$2000. Applications must be received by December 15, 2005 please contact Tim Taber (TPTaber@stearnswheler.com) for details.

National Scholarships Available

Students may also apply for the national engineering scholarships given by the National Society of Professional Engineers, and are encouraged to visit the following web site for more information: <http://nspe.org/scholarships/sc1-hs.asp>.

Please submit all applications and direct any questions to:

Tim Taber (Scholarship Chairman) (TPTaber@stearnswheler.com)

SCHOLARSHIPS

Each year the Central New York Chapter of the New York State Society of Professional Engineers (CNYSSPE) awards scholarships to worthy High School Seniors who will be going to college in an engineering or technical discipline. These young people are judged by an impartial algorithm based on their academic background, scholastic achievements and SAT scores. We are actively soliciting donations from local firms and individuals to support the scholarship fund. Public attribution and appreciation will be publicly expressed in all news releases, The Technologist newsletter and at the annual “Celebration of Technology” dinner. For additional information please contact Carl Fahrenkrug, carl-f@microwavefilter.com, 438 4722

Thank you in advance for your generosity. Together we can encourage more Central New York young people to choose engineering as a career. Your donation check should be made out to the CNYSSPE Scholarship Fund and sent to:

CNYSSPE c/o Microwave Filter Company, Inc.
6743 Kinne Street
East Syracuse, New York 13057
ATTN: Nancy Young

THANK YOU

We continue to seek donations for your Chapter’s Scholarship Fund. The fund is supported by contributions from firms and individuals who take an active interest in the future of our profession. Current contributors include:

- • Associated Builders & Contractors
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- • Syracuse Research Corporation.
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- • Watkins Environmental Sciences, P.E., P.C.

WEBSITE

There are a number of events, schedules and dates in this newsletter. Unfortunately the slowness of the printed word keeps it at least 3 weeks behind your receipt. To keep current right up to the event, go to our website at <http://www.cnype.org> . The site is as up to date as we can make it. **Check it today for current EXPO schedule and registration forms!**

BOARD OF DIRECTORS MEETINGS

NSPE members are most cordially invited to attend all board meetings. Meetings are tentatively scheduled for noon on the second Thursday of each month. Those wishing to attend should contact Mike Hayes: (315) 455-2000 ext. 4384; mhayes@cscos.com to confirm time and date.

Officers 2005-2006

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Teacher Awards Chair	Dr. Vernon A. Tryon	343-9692

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pastpresident@tacny.org
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teacherawards@tacny.org

Website of the Month

<http://www.wikipedia.org/>



Wikipedia is an ongoing project aimed at producing a new kind of Encyclopedia that is comprehensive and [free](#) for anyone to consult. This site is turning out to be a very popular, fast-growing site and is reprinted from last months' issue.

Sweet Lecture

WEDNESDAY, JANUARY 18TH

NATIONAL GRID AUDITORIUM
300 ERIE BLVD W
SYRACUSE, NY 13202

NOTE NEW TIME:
5PM – 6PM

MENU: Light Refreshments

TOPIC: GLOBAL WARMING
ADVENTURES OF THE RED-SPOTTED NEWT

Please contact programs@tacny.org by Monday, January 16th, 2006.

The Red-spotted Newt, also known as the Eastern Newt and many species of amphibians are hatched in water, including vernal pools, throughout the Northeast in the spring time. Today, vernal pools are as threatened as the species they harbor.

Please join us for a lively discussion on the environmental impacts of global warming here in Central New York and the Northeast. The presentation will be given by Joe Kwasnik, Vice-President- Environment for National Grid's US operations.

In his current capacity, he is responsible for three areas of environmental management which include management of hazardous waste sites resulting from former operations of the company such as former city coal gas sites, management of environmental issues associated with the current operations of the company such as environmental licensing and permitting, hazardous waste management and incident response, and the identification and management of emerging environmental issues such as the potential impacts on company operations resulting from global climate change, brownfield redevelopment and emerging environmental legislation and regulation.

Mr. Kwasnik is a Licensed Site Professional in Massachusetts and holds a Masters Degree in Environmental Engineering from the University of Massachusetts and a Bachelors Degree in Geology from the University of Connecticut.

President's Message

We're all busy. USAirways is likely getting ready to send me their ninth (or is it tenth?) annual thank you note for once again traveling 100,000+ miles/100+ flight segments this year. I only have two more trips planned – so far – for the rest of the year! Being on the road makes it difficult to attend most of the technology activities around town. So, what's your excuse?

I found myself in Syracuse on 16 November, and finally able to attend a TACNY Sweet Lecture, my first in a couple of years. Most of you probably know that in 1916 a lecture series was established to honor the Technology Club of Syracuse's (our incorporation name, now doing business as the Technology Alliance of Central New York) founder, Professor John Edson Sweet. At least six free and interesting lectures are presented each year. Often a dinner is also scheduled to allow the attendees some networking time. The lecture I attended was about patents. Mark Weldon discussed the process, presented fascinating statistics, and, for me at least, cleared up some of the mysteries surrounding patents. The attendees all appeared to get something out of the lecture. The problem was the number of attendees. Our speakers graciously give us their time without compensation. To speak in a mostly empty lecture hall is not fun for our guest, and certainly is embarrassing for our Program Committee. TACNY isn't the only organization with this problem. According to our Technical Societies Council, all local organizations long for the "good old days," when dozens, even hundreds, of people would turn out for a lecture. Of course, in the old days, you didn't have to make the choice between a live presentation or dozens of web-based lectures, or technology programs found on 200+ channels of television, or lots of other technologically enabled alternatives to coming out on a Central New York evening.

If you are interested in working with the Program Committee to develop programs of interest to the local technology community, drop me a note at hollander@tacny.org. Thanks.



Sonia Kovalesky Festival

By Katarina Stuetzle, Nottingham High School

The SU Math Department, the SU College of Engineering and Computer Science and the Technology Alliance of Central New York (TACNY) celebrated Sonia

Kovalesky, the first woman to earn a PhD in Mathematics, last month by organizing the annual Sonia Kovalesky Festival for Women in Mathematics. Girls from high schools in the area, who are accomplished in mathematics or have aspiring interests in the field, were invited to attend this one day event gratis at the Syracuse University campus.

This year, students went to four workshops that involved math and often science. The workshops involved practical uses of Mathematics in the real world. "Often people have the misconception that they will never use math outside of high school, so it was great to see that math is actually used by many people in their careers and in action", said Erika Sponsler, a junior at Nottingham High School.

One of the workshops was on the uses of logarithms and computers to standardize face recognition. This new and emerging technology is being developed to identify specific faces (terrorists, for example) in large crowds, to scan faces for secure entry, and other security procedures. We partnered up and had to name as many features in each other's faces that would distinguish them from someone else's face. It was pretty difficult to describe the face because there aren't that many words that exist to describe the exact formation of a nose, for example. We had to become pretty creative.

"I want to become a pharmacist so I think this was a wonderful opportunity for me," said MyPhuong Phan, also a senior at Nottingham High School. "I met many great women mathematicians and scientists that I can idolize. These women have accomplished so much and have such successful careers. They really gave me an example of what I can become."



Pictured:
Stephanie Ladd (teacher), MyPhuong Phan, Katarina Stuetzle, Sarah Last (teacher), Erica Sponsler

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Website of the Month(pt.2)



From the website:

Technology Review and *Technology review.com* are published by *Technology Review Inc.*, an independent media company owned by the Massachusetts Institute of Technology. The oldest technology magazine in the world (est. 1899), *Technology Review* has a mission to promote the understanding of emerging technologies and to analyze their commercial, economic, social, and political impacts on society, government, businesses, academic institutions, and individuals. Our goal is also to assist business and technology leaders -- CTOs, senior technologists, entrepreneurs, and venture capitalists -- in shaping markets and driving the global economy.

We believe that *Technology Review* and *Technologyreview.com* occupy a unique position at this intersection of technology, society, and business. Our editorial stance combines the sophisticated, in-depth analyses of emerging technologies and connects them to the business impact of these innovations.

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The Museum of the Earth is located at 1259
Trumansburg Rd / Rt. 96 Ithaca, NY 14850

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1/27 Biomass / Biofuels	Dr. Timothy Volk , Senior Research Scientist, SUNY-ESF Dr. Thomas Amidon , Chair, Paper Science & Engineering, SUNY-ESF Mr. David Tagg , Owner, David J. Tagg Associates, Inc.
2/3 Photovoltaics	Dr. Gay Canough , President, ETM Solar Works
3/3 Fuel Cells and Geothermal Heat Pumps	Mr. Frank Wolak , Vice President, Eastern Region Sales and Marketing Representative, FuelCell Energy Mr. Hugh Henderson , Principal, CDH Energy
3/24 Wind Power	Dr. Gay Canough , President, ETM Solar Works Dr. Bruce Bailey , President, AWS Truewind
4/28 SURE Community Speaks: Capstone Certificate Presentations	<i>Certificate Participants lead technical presentations and discussions, a culmination of the knowledge and experiences of the workshop series</i>

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