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O DECEMBER 2014

NEWS

News Blurbs Now! (NBN)

Ecology and Environment, Inc is seeking an experienced Civil/Environmental engineer for their corporate office in Lancaster.

The Peace Bridge Authority has a new plan to reduce air pollution in the area. Air

quality will be improved and the carbon footprint at the bridge reduced using an experimental type of concrete designed to suck in diesel fumes. Titanium dioxide will be used as an additive to pavement and building coatings. Research in Europe and Japan points to the compound's potential to remove nitrogen dioxides and volatile organic compounds from polluted urban air. The benefits of the titanium dioxide coating begin immediately. The plan, submitted by Wendel Engineers, also utilizes shrubs and trees as a longerterm step in the quest to reduce pollution. Steps have already been implemented to correct an ongoing situation, such as the establishment of a "no idle" zone for trucks on the plaza, "green" provisions for many of the authority's buildings and equipment, and planting trees on berms to act as environmental buffers.

Greenman-Pederson Inc has promoted Thomas J Wolanski PE to Vice President. He has over 33 years of experience in planning, design, and construction of complex multidisciplinary projects for both public and private clients. He is licensed in ten states and is recognized as an expert in the NYS Environmental Review Process under SEQRA requirements. GPI has been serving WNY clients for over 46 years and is ranked 68 in Engineering News Record "Top 100 National Design Firms."

Birdair's website

(www.birdair.com) is designed to

put you in the know regarding tensile architecture systems. The project gallery contains transportation, commercial, healthcare, entertainment, and retail jobs of all sizes. Check out the "Why Tensile Architecture?" section at the bottom of the website to be informed and educated about functional benefits and various fabric membranes available, whether you are an engineer, contractor, or building owner.

The ground for a new 410,000 square foot \$270 million children's hospital is being dug by Turner Construction Company. Over the winter, foundation work will be completed including piles and concrete. And in the spring, erection of steel will begin. The project in Buffalo is expected to be complete by the end of 2017.



President Obama has announced a new group of recipients of the National Medal of Science and National Medal of Technology and Innovation-the nation's highest honors for achievement and leadership in advancing the fields of science and technology. The honorees will receive their medals at a White House ceremony later this year. "These scholars and innovators have expanded our understanding of the world, made invaluable contributions to their fields, and helped improve countless lives," President Obama said. "Our nation



Photo Credit: National Science Foundation

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has been enriched by their achievements, and by all the scientists and technologists across America dedicated to discovery, inquiry, and invention." A committee of 12 scientists and engineers is appointed by the President to evaluate the nominees for the award. Since its establishment, the National Medal of Science has been awarded to 487 distinguished scientists and engineers whose careers spanned decades of research and development. The recipients database with information from 1962 to the present, is searchable by name, affiliation, and other criteria.

The Western New York Region of the Future Cities Competition is in search of a few more engineering mentors for Buffalo area schools. If interested, please send an email to Jennifer at JMichniewicz@ClarkPatterson.com. One of ESB's past presidents was able to travel to Washington DC with her winning Future City team almost entirely for free a few years ago. It is a rewarding experience to assist young minds with engineering principles.

Picone Construction Corp is one of WNY's Top Private Companies as ranked by Business First for the tenth year. They have completed interior renovations to the Leonardo Da Vinci High School located at 320 Porter Avenue in Buffalo and the building of a new Arby's Restaurant at 5115 Camp Rd Hamburg. There is a fresh, new look as Arby's celebrates its 50th anniversary and nationwide brand revitalization. The architect for the Arby's project was Elizabeth Buscaglia, RA. UC Davis Extension Engineering Courses are offered online. Visit www.extension.ucdavis.edu/engineering for more information.

Fabio Andreolli has published an ebook titled "New generation photovoltaics: A Guide to Design and Implementation Updated to Third Generation Technology". He can be reached at Fabio.Andreolli@superofficina.net.

Robin M Closs SE PE has been hired as a senior structural engineer for the Buffalo office of LaBella Associates, D.P.C. She is the market leader for electrical substation work and also converses regularly with colleagues in Spain to coordinate and review structural calculations and drawings.

We need your news blurbs NOW! We want to know about your recent projects, awards, hires, promotions, patents, new products, partnerships, open houses, tours, and anything else you'd like to share. Send your news to ESB1894@gmail.com.

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PRESIDENT'S MESSAGE



Our Three Goals Improve ourselves at networking and jobs. Strengthen financial management and funding. Increase participation levels. Our annual Past Presidents Dinner in October was a success with Mr. Tom Dee, President of the Erie Canal Harbor Development Corp presenting on the development of Canalside and the Outer Harbor.

It was good to hear about the many great projects and plans in process for future growth and development. We also said thank you to Matt Plizga, honored ex-officio, our past presidents, and the outgoing officers; and with the induction of the new president, officers, and directors, the new year is formally underway.

As the incoming president, I look forward to assisting my fellow board members in guiding the society into the future. If we can leave the society in better shape for the next board then our time will have been well spent. There are so many worthy issues we could tackle, but our efforts have to be concentrated to get results. Based on what is occurring with declining membership across all societies I have chosen three goals to focus on over the next year.

First, we need to stabilize and then grow our membership. Today, according to the US Bureau of Labor Statistics, 70 percent of all jobs are found through networking. And if you're a company looking for an employee, the first thing you do is network through your employees to potential hires. What better way to network than to join a professional society. Sadly, a lot of people think networking is having a Facebook and LinkedIn account. However, there is no substitute for meeting face to face with colleagues on a regular basis and exchanging information. My vision is that ESB should become the place where both companies and employees come together. Let's stabilize and grow our membership by increasing our networking and job matching opportunities.

Second, over the last five years our finances have been shrinking. Out of prudence we did not fill the executive director and office secretary positions. Our office was also moved and downsized. We must continue to place a greater emphasis on financial management and doing a better job at planning, budgeting, reporting and auditing. We need up to date tools such as enhanced computers and software and improved controls, to allow for online banking and bookkeeping using web based systems. It is time for ESB to be based in the virtual office. Simultaneously and more importantly, we must increase our revenue and fundraising opportunities. A greater emphasis should be placed on the supply side of our society.

And finally, we must actively increase participation in ESB activities. We currently have an open director position and insufficient members on our committees. In this modern, overextend life our time is allocated with great care. Falling participation signals that our activities are not providing enough value. It is time to re-access what we are doing and ensure that ESB becomes more relevant to every member. However, I see two areas we can begin focusing on. First we need to attract, retain, and invigorate younger members (equal to or less than 35 years of age.) Secondly, we must select activities that are more meaningful and interesting to our members. Tours, bowling, golf, and the scholarship run are great, but we need to discover other activities that invigorate our participation levels. This final goal may be the hardest, but we must find a way to increase participation levels. We look to our newer and younger members to assist us in attracting their colleagues and the future officers and members of ESB.

By getting better at these three things ESB can grow, become more relevant to our membership, and become the society of the future.

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CALENDAR OF EVENTS				
11-27-14		Happy Thanksgiving		
12-08-14	6pm	Ways and Means Meeting	2555 Walden Ave, Buffalo (Wendt Corp)	
12-08-14	7pm	Directors Meeting	2555 Walden Ave, Buffalo (Wendt Corp)	
12-25-14		Merry Christmas		
01-01-15		Happy New Year		
01-08-15		After Christmas Networking Party	1250 Niagara St, Buffalo (Resurgence Brewing Co)	
01-12-15	6pm	Ways and Means Meeting	To be determined	
01-12-15	7pm	Directors Meeting	To be determined	
02-09-15	6pm	Ways and Means Meeting	To be determined	

NEXT BIG ESB EVENT

After Christmas Networking Party W RESURGENEENSE BREWING CO. 1250 Niagara St Buffalo, NY 14213

Join Us Thursday, January 8, 2015

- Cost \$6 per Person
- No Stress Atmosphere
- Contact list will be shared after the event
- Craft Beers and local eats!
- Wear your company shirt
- Talk business, local projects, employment opportunities
- BEER!





Contact Matt Plizga at mplizga811@aol.com for more information



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Prince Rubber & Plastics Co Inc **RJR Engineering PC** Se-Mar Electric Company Inc SIB Services Inc **TMP** Technologies Inc Trautman Associates T.Y. Lin International Weydman Electric Inc

TECHNICAL ARTICLE

Bionic Hand Gives Amputees Real Time Sensation By Tara Pfarner

Most of us use our hands for hundreds, perhaps thousands, were developed. of tasks each day and give the process little thought. You are likely holding this newsletter (or scrolling through it using a mouse), perhaps having a snack or sipping a cup of coffee, and using your hands for all of these things.

The history of the prosthetic hand goes back at least to ancient Greece, where historian Herodotus tells the story of Hegesistratus, who cut off his own foot to escape his Spartan captors and replaced it with a wooden one. Pliny the Elder also recorded the tale of a Roman general, Marcus Sergius, whose right hand was cut off while campaigning and had an iron one made to hold his shield so that he could return to battle.

The LifeHand prosthetic device was successfully tested in 2009. This was the first thought-controlled bionic prosthetic to have rudimentary touch feedback. The next generation of this incredible invention, LifeHand 2, is currently in development. This device is able to transmit sensory data to its wearer in real time, replicating the function of the hand to a greater degree than previously possible.

The prosthetic's development is the result of an international collaboration led by Silvestro Micera. The first generation LifeHand took five years and \$3 million to develop. It was funded by the European Union. It was covered in sensors that interpret information based on the movement of artificial tendons. These sensors are connected to four electrodes which tap into the wearer's nervous system at the base of the natural arm. To translate the rough electrical signals transmitted by the device into more refined impulses which could be processed by the brain, complex computer algorithms

The device was tested in Rome in 2013 on a man who had lost the lower portion of his arm to a fireworks accident. The electrodes were implanted in the



Photo credit: freeimages.com

patient and tested over the next three weeks to ensure that they were functioning and communicating with his brain properly. The formation of scar tissue around the implants did not cause any change in function, something that researchers had been concerned about. The patient, without a hand for nearly a decade, was now able to identify objects through touch while blindfolded.

While researchers are confident that the electrodes could remain in place for a number of years without adverse effects, clinical trial regulations only allowed them to be implanted for a month. After that time, the patient had to go back to his usual prosthetic, which can grip objects by reacting to muscle movement in his upper arm. Kudos to him for agreeing to participate in the experiment knowing that he would have to give up anything that he gained at the conclusion of the trial. Hopefully however, many more people will benefit from his sacrifice in the future. It will likely be a number of years before the LifeHand 2 will be approved for commercial use, but perhaps with time will come further developments contributing to the product's sensitivity and accuracy.

Tara Pfarner is an administrative assistant at RJR Engineering, P.C. She can be reached at tara@rjrpc.com.



STUDENT INFO

Millennials, Meet Cow Wow By Robin M Closs SE PE

Kids, drink your milk. You have heard it before, right? Well, Cow Wow was trying to make the task of getting students their daily intake of dairy easier. You see they created flavored milk products and originally were targeting kids ages five to twelve. Hey parents, you're kids will like milk with our product. Well, it seems the product has received a much better response from college aged students.

The product is designed to taste like the leftover milk at the bottom of your cereal bowl. Delicious! But what if you aren't in the mood to eat cereal? What if you want to just have that scrumptious flavored milk without having to eat any cereal? That's where Cow Wow comes to the rescue! But kids aren't noticing the product, millennials are.

Publications for millennials are chatting about Cow Wow products. And Cow Wow products are flying off the shelf in a college food court. Even Jimmy Kimmel mentioned the Cow Wow products on his television program.

What to do next? Change the business plan! And that's exactly what Christopher Pouy did. Advertising is a tricky thing and right now, it seems that the children's cereal market has a trend toward "less artificial cereals." So instead of marketing to parents and meeting the "healthy" resistance, the product is being changed to appeal to a college student. The package size will be increased by almost 30%, the kiddy names will be changed (Booyah Berry instead of Fruity Trudy), and the straw will disappeared. About January, you should be able to see the new product on the supermarket shelves. College students, go drink your milk...the Cow Wow way. Just please don't cry over any spilled milk. I know it's party city in the college world but no one wants to clean up spilled milk. Wait. Why do people cry when they spill milk? I have no idea but then again, I'm not a millennial so how would I ever figure this stuff out.

COW-WOU CEREAL MILK

Robin M Closs SE PE doesn't put milk in her cereal because she doesn't like soggy cereal. She is a past president of The Engineering Society of Buffalo and a licensed structural engineering at LaBella Associates, D.P.C. She can be reached at clossr@yahoo.com.

Local/Online PDH Opportunities

For additional information regarding these opportunities, contact our office at ESB1894@gmail.com or 716-873-4455. Discounts for some pricing are available for certain society members, small companies, etc. And if you have information regarding future PDH opportunities that may be of interest to our members, please forward them to our office for inclusion in the newsletter and on our website at www.tesb.org.

Date	Hours	Location	Information	Cost
All	Varies	Online	Multiple at http://continuingeducation.zweigwhite.com	Free
All	Varies	Online	Multiple at http://aspe.org/webinararchives	\$130
All	Varies	Online	Multiple at http://www.csemag.com/media-library/on-demand-webcasts.html	Free
All	Varies	Online	Multiple at http://campusonline.iccsafe.org/crscatalog.php	Free
All	Varies	Online	Multiple at http://bdcuniversity.com	Free
All	2.0	Online	ASME Standards and Certification	Free
All	1.0	Online	LEED and High Performance Glass	Free
All	1.0	Online	The Evolution of Glass and High Performance Coatings	Free
All	N/A	Online	OSHA 10-Hour Course	\$60
All	2.0	Online	Communicating to a Non-Technical Audience (ASME)	\$95
12/03/14	4.0	Webinar	HVAC Systems Overview	\$258
12/04/14	1.5	Webinar	2012 IBC, ASCE 7 & 2008 SDPWS Seismic Provisions for Wood Construction	\$275
12/04/14	1.5	Webinar	Design of Buildings for Coastal Flooding	\$349
12/04/14	?	Webinar	New Test Methods for Evaluating Materials and Electrical Insulation Systems	Free
12/04/14	4.0	Webinar	Solar Energy Principles and Applications	\$258
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12/08/14	?	Webinar	Blankets, Tapes, and Sleeves - Which Insulating Method is Best?	Free
12/09/14	1.5	Webinar	The Ups and Downs of Suspension Bridges	Free
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12/17/14	4.0	Webinar	Advanced Wastewater Treatment Systems	\$258
12/18/14	4.0	Webinar	Passive Solar Heating For Buildings	\$258
12/29/14	2.0	Webinar	Open Channel Hydraulics I	\$129
12/29/14	4.0	Webinar	Helical and Push Piers in Deep Foundation	\$258
12/30/14	2.0	Webinar	Preparation of Foundations for Structures	\$129
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01/08/15	1.5	Webinar	Underpinning and Strengthening of Foundations	\$349
01/12/15	2.0	Webinar	Design of Anchor Bolts	\$399
01/13/15	1.5	Webinar	Behavior, Design, and Special Installation of Adhesive Anchors	\$275
01/15/15	1.5	Webinar	Behavior & Design of Cast-In-Place and Mechanical Expansion Anchors	\$275
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01/20/15	1.5	Webinar	Design Examples Using the ACI Anchorage Provisions	\$275
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02/10/15	1.5	Webinar	Practical Solutions to Frequently Asked Welding Questions	\$275
02/18/15	1.0	Webinar	Approving or Selecting Building Products with Confidence	Free
02/26/15	1.5	Webinar	The Structural Engineer's Role in Building Community Resilience	\$275
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	November	9	\$185	\$335	\$530	\$940
	December	8	\$180	\$325	\$520	\$920
	January	7	\$175	\$315	\$500	\$880
	February	6	\$165	\$300	\$480	\$840
	March	5	\$150	\$275	\$450	\$785
	April	4	\$130	\$240	\$400	\$695
	Мау	3	\$105	\$195	\$330	\$570
	June	2	\$75	\$140	\$240	\$410
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Researchers Crack The Cloak By David Barnstone

Inspired perhaps by Harry Potter's invisibility cloak, scientists have recently developed several ways - some simple and some involving new technologies - to hide objects from view. The latest effort developed at the University of Rochester not only overcomes some of the limitations of previous devices but it uses inexpensive, readily available materials in a novel configuration. "There've been many high tech approaches to cloaking and the basic idea behind these is to take light and have it pass around something as if it isn't there, often using high -tech or exotic materials," said John Howell, a professor of physics at the University of Rochester. Forgoing the specialized components, Howell and graduate student Joseph Choi developed a combination of four standard lenses that keeps the object hidden as the viewer moves up to several degrees away from the optimal viewing position.

"This is the first device that we know of that can do threedimensional, continuously multidirectional cloaking, which works for transmitting rays in the visible spectrum," said Choi, a PhD student at Rochester's Institute of Optics. Many cloaking designs work fine when you look at an object straight on, but if you move your viewpoint even a little, the object becomes visible, explains Howell. Choi added that previous cloaking devices can also cause the background to shift drastically, making it obvious that the cloaking device is present.

In order to both cloak an object and leave the background undisturbed, the researchers determined the lens type and power needed, as well as the precise distance to separate the four lenses. To test their device, they placed the cloaked object in front of a grid background. As they looked through the lenses and changed their viewing angle by moving from side to side, the grid shifted accordingly as if the cloaking device was not there. There was no discontinuity in the grid lines behind the cloaked object, compared to the background, and the grid sizes (magnification) matched.

The Rochester Cloak can be scaled up as large as the size of the lenses, allowing fairly large objects to be cloaked. And, unlike some other devices, it's broadband so it works for the whole visible spectrum of light, rather than only for specific frequencies. Their simple configuration improves on other cloaking devices, but it's not perfect.

Continued on page 9



TECHNICAL ARTICLE

Continued from page 8

"This cloak bends light and sends it through the center of the device, so the on-axis region cannot be blocked or cloaked," said Choi. This means that the cloaked region is shaped like a doughnut. He added that they have slightly more complicated designs that solve the problem. Also, the cloak has edge effects, but these can be reduced when sufficiently large lenses are used.

In a new paper submitted to the journal Optics Express and available on arXiv.org, Howell and Choi provide a mathematical formalism for this type of cloaking that can work for angles up to 15 degrees or more. They use a technique called ABCD matrices that describes how light bends when going through lenses, mirrors, or other optical elements.

While their device is not quite like Harry Potter's invisibility cloak, Howell had some thoughts about potential applications, including using cloaking to effectively let a surgeon "look through his hands to what he is actually operating on," he said. The same principles could be applied to a truck to allow drivers to see through blind spots on their vehicles.

Howell became interested in creating simple cloaking devices with off-the-shelf materials while working on a holiday project with his children. Together with his 14 year-old son and Choi, he recently published a paper about some of the possibilities and also demonstrated simple cloaking with mirrors, like magicians would use, in a brief video.

To build your own Rochester Cloak:

1. Purchase 2 sets of 2 lenses with different focal lengths f1 and f2 (4 lenses total, 2 with f1 focal length, and 2 with f2 focal length)

2. Separate the first 2 lenses by the sum of their focal lengths (So f1 lens is the first lens, f2 is the 2nd lens, and they are separated by t1 = f1 + f2).

3. Do the same in Step 2 for the other two lenses.

4. Separate the two sets by t2=2 f2 (f1+f2) / (f1-f2) apart, so that the two f2 lenses are t2 apart.

For their demonstration cloak, the researchers used 50mm achromatic doublets with focal lengths f1 = 200mm and f2 = 75mm. Achromatic lenses provide the best image quality. Fresnel lenses can be used to reduce the total length (2t1+t2). The smaller total length should reduce edge effects and increase the range of angles. For an easier but less ideal cloak, you can try the three lens cloak in the paper.

See back page for photos. A patent has been filed for this cloaking device. Please contact UR Ventures for additional information. This article is courtesy of University Communications at the University of Rochester, reprinted with permission of David Barnstone, Senior Science Writer. He can be reached at dbarnsto@ur.rochester.edu.



Smartphone Detects Vision Problems In Newborns By Ellen Goldbaum

Researchers at the University at Buffalo School of Medicine and Biomedical Sciences have successfully used a smartphone app to image the back of the eye, or fundus, in patients who can be particularly challenging to examine: newborn babies and children. The iExaminer adapter, developed and marketed by WelchAllyn, allows researchers to combine the PanOptic ophthalmoscope, a portable lighted instrument used to look inside the eye, with iPhone technology to instantly take photos and videos of the fundus. The findings were presented by the UB researchers in a poster session and at a news conference at the annual meeting of the American Academy of Ophthalmology in Chicago.

Conventional fundus cameras, which typically accommodate adult patients, are expensive and generally only available in specialized eye clinics. "Our group aimed to investigate an alternate method of fundus imaging to better serve patients who may be too young or too ill to hold a position for the traditional cameras," explains Jiaxi Ding MD, a UB medical resident in the Department of Ophthalmology and UB's Ross Eye Institute. She and fellow researcher Matthew S Pihlblad MD, clinical assistant professor in the Department of Ophthalmology, focused their project on 28 pediatric patients in their clinic and at Women and Children's Hospital of Buffalo. "As you can imagine, children are often the most challenging subjects to image," says Ding. "The children we studied ranged from healthy, hyper-energetic kids to medically fragile infants in intensive care units. We were able to capture a diverse range of retinal and optic nerve findings." One example is retinopathy of prematurity or ROP. "ROP is an eye disease that can lead to vision loss in premature babies for which laser treatment may be appropriate," says Ding.

"Imagine trying to explain to a tiny newborn's nervous parents that urgent, sight-saving laser treatment is needed," she says. "In that moment, it would

be so powerful to show them a photo taken at the bedside to show them what we as doctors see. That's what we can do with the iExaminer system." Pihlblad agrees: "The old saying of a picture is worth a thousand words rings true in this situation. I work with my ophthalmology residents on a daily basis, along with rotating medical students and family medicine residents. The iExaminer is extremely useful for educating patients, parents, residents and students, as well as for providing medical documentation that helps with follow-up on these patients."

International attendees at the AAO meeting were especially interested in the UB findings. "Our poster received significant interest from colleagues in India, Korea, and other countries where they may not have as much access as we do to the most sophisticated ophthalmic equipment," says Ding. "The iExaminer system provides an alternative measure for them to obtain inexpensive and good-quality imaging at the bedside." The system can capture key structures at the back of the eye in a single view without necessarily needing drops to dilate the eye. "That makes it an attractive option for non-specialized eye care by physicians in the emergency department and primary care doctors," Pihlblad explains.

The iPhone technology also enables instant electronic transmission of images and consultation between physicians via telemedicine and facilitates capturing, storing, and transferring collected data.

The UB researchers were funded by an unrestricted grant from Research for Preventing Blindness to the UB Department of Ophthalmology.

Ellen Goldbaum is the News Content Manager, Medicine, at UB. This article appears as a news release on the University at Buffalo's website. See more at: http://www.buffalo.edu/news/



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OCT MEETING MINUTES

Attendees:	Officers: Board Members: Members:	Closs, Samol, SanFili Bandriwsky, Kolber, I	ppo, Scofidio Plizga, Wach			
Call to Order:	President Marco Scof	idio called the meeting	to order at approximately	5:00pm		
Minutes:	The minutes of the previous meeting were not reviewed					
Committee Reports						
Advertising:	No report					
Audit:	No report					
Bowling:	On Nov 19, there will be a Turkey shoot with many members receiving a frozen turkey					
Bylaws:	No report					
Education:	Enough individuals signed up that a FE course will be starting up Oct 14					
Endowment:	No report					
Entertainment:	Detailed PPD dinner planning is underway. The date and venue have been set. The speaker will be Tom Dee.					
Fundraising:	Considered the possibility of selling ESB polo/t-shirts. Jeff Wach recommended we consider sending the ESB logo to Lands End. ESB would not receive any revenue from this approach.					
Golf:	ESB expects to net about \$600. All revenue to date has been deposited into the ESB account.					
Historian:	No report					
Media:	Marco Scofidio is looking for photo's of scholarship run to add to the website					
Newsletter:	Send news and other items for inclusion to ESB1894@gmail.com by the 15th of the month					
Nominating:	No report					
Scholarship:	No report					
Scholarship Run:	Matt Plizga has agreed to chair the 2015 scholarship run again. Some of the volunteers did not get a t-shirt due to					
	the high runner turnou	it. More shirts are orde	ered.			
Sunshine:	No report					
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Engineering A Better Tire By Tara Pfarner

Michelin has developed a no-maintenance tire for use on skid steer loaders. Dubbed the tweel (tire + wheel), it features a single unit replacing the current tire, wheel, and valve assembly.

With a universal 8-hole, heavy gauge steel hub, the tire is designed to fit all standard skid steer machines without complex wheel/tire mounting equipment. Once bolted on, there is no air pressure to maintain. Because the tweel does not use a bladder of compressed air, it cannot burst, leak, or go flat.

Radiating from the hub is a system of high strength, flexible poly resin spokes which provide a unique transfer of energy while carrying the load. Zero degree belts and proprietary design create a "shear beam" which transfers the load to a uniform contact patch. The outside of the tire features a deep, open tread for traction. The tread is replaceable, offering less of an environmental impact than traditional tires.

According to product data on Michelin's website, the tweel provides greater stability and less bounce than a standard tire, leading to increased comfort and reduced fatigue for the operator, with faster work being a result. Because of its unique construction, the tweel offers a wear life of two to three times that of a pneumatic tire. Because the tire is resistant to penetrations and impact damage, down time and repair costs are reduced.

The innovation has received a number of awards, including being named as one of the five "game-changing" construction products for 2013.



[&]quot;Tweel" by KVDP - Own work.. Licensed under public domain via Wikimedia Commons - http://commons.wikimedia.org/wiki/File:Tweel.JPG#mediaviewer/File:Tweel.JPG



Tele-Robotics Puts Robot Power At Your Fingertips By Aaron Dubrow

At the Smart America Expo in Washington DC in June, scientists showed off cyber-dogs, disaster drones, smart grids, and smart health care systems. Everything intended to address some of the most pressing challenges of our time.

The event brought together leaders from academia, industry, and government and demonstrated the ways that smarter cyber-physical systems (CPS) - sometimes called the "Internet of Things" - can lead to improvements in health care, transportation, energy, emergency response, and other critical areas.

In the aftermath of an earthquake, every second counts. The teams behind the Smart Emergency Response System (SERS) are developing technology to locate people quickly and help first responders save more lives. SERS demonstrations at the Smart America Expo incorporated several NSF-supported research projects.

Howard Chizeck, a professor of electrical engineering at the University of Washington, showed a system he helped develop where the operator can log on to a Wi-Fi network in order to tele-operate a robot working in a dangerous environment.

"We're looking to give a sense of touch to tele-robotic operators, so you can actually feel what the robot endeffector is doing," Chizeck said. "Maybe you're in an environment that's too dangerous for people. It's too hot, too radioactive, too toxic, too far away, too small, too big, then a robot can let you extend the reach of a human."

The device is being used to allow surgeons to perform remote surgeries from thousands of miles away. And through a startup called BluHaptics - started by Chizeck and Fredrik Ryden and supported by a Small Business Innovation Research grant from NSF - researchers are adapting the technology to allow a robot to work underwater and turn off a valve at the base of an off-shore oil rig to prevent a major spill.

"We're trying to develop tele-robotics for a wide range of opportunities," Chizeck said. "This is potentially a new industry, people operating in dangerous environments from a long distance."

Contact Aaron Dubrow at adubrow@nsf.gov and find out more about NSF at www.nsf.gov. This article is reprinted courtesy of The National Science Foundation.



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Compound Bow, Simple Machine, Great Advantage By Grady McGraw

The compound bow was invented in the 1960s by American engineer Holless Allen. At the time Allen created the bow, it was illegal to manufacture devices that were attached to bows. In addition, it was illegal to use them in competitions or when hunting. This prevented Allen's bow from being manufactured, but that was a good thing. Over the course of several years he realized the design was flawed. The way the cables crossed at

the center of the bow interfered with the flight path of the arrow. In 1967, Allen fixed this problem and eventually the bow was manufactured in the United States and worldwide. Allen's bow became so successful that it has become the predominant bow for hunting and competitions throughout the United States and abroad.



The compound bow is similar to

traditional longbows and recurve bows except for its design and materials. This modern bow uses a levering system composed of cables and pulleys. The limbs are stiffer which makes the bow more energy efficient. The bow's strings are attached to pulleys which have cables attached to the opposite limbs. When the strings are pulled back, the pulleys turn causing the

cables to be pulled. This bends the limbs and allows them to store energy. Although the mechanics behind the bow may seem complicated, the bow is actually quite easy to use.

The compound bow offers many advantages to hunters and competitors. Besides being more energy efficient, changes in temperature and humidity have little effect on the bow giving it superior accuracy, velocity, and distance compared to other bows. The bow's let off usually ranges from 65-80% but it can reach 99%. The configuration of the horizontal limb minimizes the amount of vibration the shooter feels when the arrow is released. The pulleys also control the acceleration of the arrow.

Despite its advantages, the compound bow does have some disadvantages. One major complaint users of the bow have is that it is hard to restring the bow on your own. In order for you to be able to restring the bow, you need a special clamp called a bow press. In order to use a bow press, you need professional training. You can also go to a specialty shop to restring your bow, but you will have to pay. In addition, the bow has a low holding weight. This makes the bow more sensitive to form faults when fully drawn.

At CompoundBowConnection.com, we have the bowhunting equipment, product resources, quality links, and information on compound bow, crossbow hunting, and archery you need to succeed. This article is reprinted with permission.





Reindeer Games By Robin M Closs SE PE

Rudolph isn't the only one left out of the reindeer games. I bet you have been left out in the cold too.

Did you know that in some parts of the world, reindeer are used as racing animals? Norway even has a Sami National Day in February where skiers will trail behind their favorite reindeer as they "dodge" through urban streets. Things are a bit more precise in Finland where racers see who can be pulled the fastest down a twelve meter track. And you can get your own reindeer driving license at the Reindeer Carnival in Oulu, Finland! Don't leave the United States out of all the fun. Can you guess which state would participate in these oddities? Yup, those crazy Alaskans run, run, run down the street, street, street with a herd of reindeer following them. Don't believe me? You have got to visit this www.atlasobscura.com/articles/reindeer-racing to see all the great pictures and some videos too! (The running ones are much more amusing that the one to the right.) I'm not sure I actually knew what a reindeer looked like when it was running, until now. I hope they don't bite their tongue as it is sticking out of their mouth while running! It's okay, take a little bit of a break and go check it out now. The newsletter can wait...

In North America, the reindeer is typically called a caribou. Reindeer vary in color and size. Usually both males and females grow antlers, but there are a few species of reindeer where females do not.



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- 1. According to the Bible, how many wise men visited the Christ Child?
- 2. In "Jingle Bell Rock" everyone is dancing and prancing. Where do they do it?
- 3. Who first recorded "Rudolph the Red-Nosed Reindeer"?
- 4. Where did there arise such a clatter?
- 5. Name all of Santa's reindeer.
- 6. In the poem "The Night Before Christmas", Santa Claus is used how many times?
- 7. In the film "A Christmas Story", what was the one specific thing Ralphie wanted?
- 8. Who wrote the classic story "A Christmas Carol"?
- 9. The Germans made the first artificial Christmas tree out of what?
- 1. Zero
- 2. Jingle Bell Square
- 3. Gene Autry
- 4. The front yard
- 5. Blitzen, Comet, Cupid, Dasher, Dancer, Donder, Prancer, Vixen
- 6. 8
- 7. Red Rider BB Gun
- 8. Charles Dickens
- 9. Goose feathers

- 10. What are the earliest known Christmas ornaments?
- 11. If you totaled all the gifts given in the "Twelve Days of Christmas" song, how many would their be?
- 12. In "A Charlie Brown Christmas", what kind of tree does Lucy send Charlie Brown to get?
- 13. From the original "A Christmas Carol", Scrooge is visited by four ghosts. Name them.
- 14. What Christmas song is considered the best selling single of all time?
- 15. In what state is there a town called Santa Claus?
- 16. What company helped shape the modern day image of Santa Claus?
- 17. What was the first state to declare Christmas an official holiday?
- 18. Does the Bible tells us Christ was born in December?
- 10. Apples
- 11. 364
- 12. One without needles or a lonely tree
- Christmas past, Christmas present, Christmas Yet to Come, Jacob Marley
- 14. White Christmas
- 15. Indiana
- 16. Coca-Cola
- 17. Alabama
- 18. No



BOWLING LEAGUE

Bowling Fun Facts A 150-lb man bowling for 30 minutes burns 102 calories. (A study showed that Wii bowling is not far behind so in the event of a blizzard, stay home and keep bowling!)	pre left	sident Mooney	Vice President evin Devine	Handicap Series	
Bowling uses almost every major muscle group, including the cardiac muscle (heart).	20	B	Treasurer	Mike Mosher	781
Bowling shoes generally come in sizes 6.5 to 15 for men and in sizes 5 to 11 for women.	Let Mooney		Norm	Cross Alley w/Hand	<u>icap</u> 299
Team Standings Week 6 Wo	<u>n Lost</u>	Scratch Game		Scratch Series	
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East Robinson & North French Rd Design & Construction Inspection

GPI along with our client the Erie County Department of Public Works, commemorated the completion of construction on the East Robinson and North French corridor this fall with a dedication ceremony officiated by Erie County Executive Mark Poloncarz, Erie County Public Works Commissioner John Loffredo, and Representative Brian Higgins on October 9, 2014.



GPI was selected to perform design and construction phase services for this Locally Administered Federal Aid (LDSA) project located in Amherst, NY. The project included 1.2 miles of full depth roadway reconstruction of an existing two-lane roadway, plus the addition of two travel lanes and a continuous two-way center turn lane, widening the thoroughfare to five-lanes in total. In addition, the existing bridge over Town Ditch No. 2 was replaced and a new closed drainage system constructed.



The reconstructed stretch of roadway addresses issues caused by increased traffic volume over the years due to the significant development in the area. The route connects Niagara County and Niagara Falls Boulevard to major highways and the University at Buffalo's North Campus. This primarily commercial section of Amherst sees more than 16,000 vehicles daily, highlighting the need for the improved conditions.



Work along this busy stretch of roadway also included watermain replacement and drainage improvements, which consisted of a closed drainage system and concrete gutter/curbs. In addition, GPI's design provided for intersection improvements, as well as upgrade and placement of signs and pavement markings. Other project enhancements included traffic signals, signs and pavement markings, and driveway aprons.

Pedestrian and bicycle travel were also improved with the addition of sidewalks, sidewalk ramps, sidewalk crossings, and provisions for bicycles.

The total project cost was \$10.1 million.



Skip Meeting, Better Leader? By Ilya Pozin

is the ability to look at problems in new ways, find creative solutions, and think outside-of-the-box in order to inspire others to greatness. Leadership isn't all about you, after all...it's about how you communicate and motivate others.

Unfortunately, many of today's current leaders are falling down on the job. We're in the middle of something close to an employee engagement crisis, with Gallup finding 70 percent of the American workforce checked out on the job. This probably explains why CareerBuilder discovered 77 percent of employed workers are actively searching or open to new career opportunities. Without effective leadership, employees eventually start eying the door. Sometimes effective leadership means throwing conventional wisdom out the window. After all, the traditional way things are done might have you stuck in a rut. It's time to break free and embrace some leftof-center techniques to grow your leadership skills or reconnect with your team.

Here are four ways to grow your leadership:

1. Refuse Early Meetings. You get up in the morning psyched about powering through your to-do list. You spend your commute getting ready for the work day. You know exactly what you need to get accomplished and as you walk in the door, you're ready to start crossing items off your list. There's only one problem: you have an early morning meeting and your momentum immediately screeches to a standstill.



I spoke recently to project management expert Tony Wong about his experiences working with video game company Riot Games. When Riot came to Tony, they had a great culture of communication, but it was actually getting in the way of their overall productivity. Wong suggested the company take the first hour of the day and throw it out the window - for meetings at least. By refusing early meetings, leaders and workers could spend time prioritizing their to-do lists including prioritizing which meetings were actually necessary.

If you're a leader, consider implementing a short-term block on all early meetings and see if productivity improves. If you're not in a leadership position, go to your manager and suggest moving meetings to later in the day. You might be amazed at how much you can accomplish when you free your mornings to prioritize and plan.

2. Look For a Devil's Advocate. Having a workplace debate can make even the most steely leader reconsider their stance on certain issues and their belief in certain projects - yet many leaders and workers avoid debate and discussion at all costs. As a leader, you can't surround yourself with "yes men" if you want your company to succeed, grow, and thrive.

Leaders need to create a culture where it's not only acceptable to question everything, but it's required. Create a designated time in every meeting or at the start of every major project where everyone

It's not easy being a great leader. One of the marks of good leadership involved can play devil's advocate. Defending a position or hashing out potential problems can help you understand the importance of your work and discover what areas might need to be improved upon.

> If you're not a leader, go to your superiors and discuss how employee input can become a more essential part of the process. Explain that you don't want to be adversarial, you just want the company to be the best it can be and that by embracing discussion and debate, companies empower the whole team to contribute no matter their position in the corporate hierarchy.

3. Learn From Someone Outside Your Niche. Once you choose a career path or industry, you can get calcified in certain ways of thinking. After years of doing things the same way, it can become harder and harder to think outside of the box and to creatively problem solve. What's the solution? How about taking a page from the playbook of New York Jets' general manager and executive vice president Mike Tannenbaum. Tannenbaum implemented a professional improvement day, where employees follow and learn from someone in a different walk of life. This could mean following around a police officer, an accountant, or even Howard Stern. After breaking free from their jobs for a day, Jets employees return for a barbeque lunch to share the knowledge they've acquired. It's all too easy to get so stuck in your niche that you actually cut down on your skill set. For both leaders and employees, looking at the world from another perspective can actually open up new experiences and add new wisdom.

4. Volunteer Your Time. If you feel like you're always being passed over for leadership opportunities at work, stop scrolling job boards and feeling sorry for yourself. The problem might not be your company or your project manager, it might just be your leadership skills. A great way to gain useful on-the-ground leadership techniques is to volunteer your time and efforts in your local community.

As a leader, honing these skills in a volunteer setting can keep them

sharp. Plus leading a project, coordinating an event, or even spearheading a fundraiser can help you develop new talents.

Once you've gain confidence in your newfound abilities to lead and inspire, this confidence will be more noticeable to the movers and shakers in your office. And if it isn't, you now have concrete examples of your leadership abilities to show you're up to the task when negotiating with management for an opportunity to lead.



Great leadership abilities don't show up overnight and they certainly don't develop by following the same well worn paths as everyone else. Sometimes you have to take a few steps down a different road in order to become a better, and more skilled, leader.

Ilya Pozin is a serial entrepreneur, writer and investor; founder of Pluto.TV, Open Me, and Ciplex; and writer for Forbes and Inc. This article, published on LinkedIn, is reprinted with permission. Follow him by visiting www.linkedin.com/in/ipozin.



