

Call for Volunteers

The IEEE Central Indiana Section is always looking for energetic members that have a little time to help their section and community. We currently have the following Executive Committee positions open:

- Section Secretary
- Section Professional Activities Committee Chair
- Section Newsletter Editor and if you are a member of the Computer Society
- Chair of our Computer Society Chapter

If you have an interest in volunteering for any of these positions, would like more details on the positions, or want to help serve your local IEEE Section in any other capacity, please contact Phil Walter, Section Director and Nominations Chair at <u>phil.walter@ieee.org</u>.

Volunteering can also be a good resume builder and as always, thank you for volunteering!!

Save the Date!

IEEE-CIS Terre Haute Networking Dinner

Co-sponsored by Rose-Hulman Institute of Technology

Date: Thursday, March 10, 2016

Time: 05:30 pm to 07:00 pm (1.50 hours) Building: Hulman Memorial Union, 5500 Wabash Ave, Terre Haute, Indiana 47803

It is time for us to have our first CIS-IEEE Networking Dinner of the year dinner for Local IEEE members to socialize and share professional experiences prior to the March Section Executive Committee meeting. Any professional member or IEEE student branch officer is welcome to join the section volunteers and Rose-Hulman and Indiana State. Meal is \$6/person collected at student cafeteria.

The normal Section Executive Committee meeting is open to everyone and will start at 7:00 PM in person and over Cisco WebEx.

After the meeting, the young professionals and students of age will go to Sonka Irish Pub down the road for a casual night out 8:45 PM-10:30 PM. It should be a fun night! Mark your calendar now!

RSVP: https://meetings.vtools.ieee.org/meeting_view/list_meeting/38727



Attendees at October CIS-IEEE Networking Dinner Participants

Save the Date! IEEE YP & STEP Program Event

Date: Saturday, March 26, 2016 Time: 1:00 pm Building: Purdue Student Union Building, 101 N Grant St, West Lafayette, IN 47906

The IEEE Young Professionals (YP) Chair, Jonah Crespo, is helping organize a STEP (Student Transition and Elevation Partnership) Program event in West Lafayette on Saturday, 26 March. These events help recognize graduating seniors as well as the other international IEEE members on campus. There should be dinner and a fun activity such as paintball or go-kart racing planned, so those on the Purdue University-West Lafayette campus should mark their calendars!

RSVP: <u>j.g.c@ieee.org</u> (Jonah Crespo, YP Chair) or <u>michael.r.hayashi@ieee.org</u> (Michael Hayashi, Student Activities Chair)

Save the Date! Annual Central Indiana Section Baseball Outing

Date: Sunday, June 26, 2016 Time: 10:00 am - 3:00 pm Location: Victory Field, 501 West Maryland Street, Indianapolis, IN 46225



Enough cold and snow, think of a beautiful summer afternoon enjoying food, family, friends, and even a cold brew on the warm but breezy 1st base terrace of Victory Field watching the Indianapolis Indian's take on the Louisville Bats. Mark your calendar now!

Please contact Phil Walter at phil.walter@ieee.org for more information or if you have any questions.

CIS-IEEE, SWE, SHPE and ASME Celebrate National Engineers Day to Kick off Engineers Week

by Bob Evanich

On February 20th, CIS-IEEE, along with the Society of Women Engineers (SWE), Society of Hispanic Professional Engineers (SHPE) and the American Society of Mechanical Engineers (ASME), kicked of Engineers Week (Feb. 21-27) by celebrating "National Engineers Children's Day at The Children's Museum of Indianapolis".

Members from SWE challenged young guests to build a lunar lander to protect their marshmallow astronauts. SHPE members showed aspiring engineers how to build structures out of spaghetti and marshmallows, and had them build their own creations. Many student members from ASME taught guests how to build strong bridges and demonstrated Newton's Laws of Motion with several different activities. ASME students also helped with IEEE sponsored activities of building a flashlight circuit, Robo-Wheel and how engineering principles can be used while playing various games.

This was the 11th year of celebrating Engineers Day.



Children are Building Bridges with Help from Volunteers

The Reporter

Power & Energy / Industry Applications / Power Electronics Society

Diana Vasquez, Chair, PES/IAS/PELS Ben Huckaba, Vice-Chair, PES/IAS/PELS Gary Rhodes - Secretary, PES/IAS/PELS Jerry Hohn - Treasurer, PES/IAS/PELS Mike Darnell - L31 Office, PES/IAS/PELS

The January meeting was titled "Overview of the Threat of Intense Geomagnetic Storms to High Voltage Grids", presented by William A. Radasky, Ph.D., P.E., IEEE Life Fellow of Metatech Corporation. The following slide shows damage from a geomagnetic storm in 1989 at a New Jersey nuclear power plant.



The February PES/IAS/PELS meeting was on legislation Congress will be working on in 2016 that will impact technology professionals, including immigration policy, the 2017 budget, energy, and reauthorization of the Higher Education Act, presented by Russ Harrison of IEEE-USA, the lobbying arm of IEEE on Capitol Hill.



Handout from February's presentation – how you can influence our political leaders

The March will take place on the 4th Tuesday of the month, March 22nd, and not the 3rd Tuesday as is typical. William E. DeWitt, P.E. Professor Emeritus, Purdue University will be presenting on forensic engineering and discuss his experiences with teaching and practicing forensic engineering. Through a variety of case studies, he will discuss failure analysis of electrical and mechanical systems with an emphasis on fires, explosions, and electrical accident reconstruction.

April 1st will be the Mid-Continental Independent System Operator (MISO) tour located. The event is a tour of the MISO control room (viewing area) and a discussion of MISO operations, held at MISO's offices in Carmel. This tour can only accommodate 25 this year, so those who did not attend last year's tour will be shown preferential treatment this year. We also ask any non-citizens of the US to contact Diana Vasquez dcvasque@ieee.org two weeks beforehand, as there are some additional requirements.

The May meeting is tentatively planned to be on Cyber-Security, presented by Erfan Ibrahim of NREL. The rapid increase in distributed generation in the United States has elevated the importance of cybersecurity in the electric sector. This is because distributed generation sources or smart devices are often located in unmanned facilities with limited or no physical security. Hackers can have unfettered physical access to these resources and could potentially launch cyber-attacks by either tampering with the intelligent systems on the distributed generation sources or attaching a peripheral device laden with sophisticated malware to disrupt operations. The traditional cybersecurity controls such as firewalls, access control lists, encryption, authentication and authorization do very little to block such attacks. This is because the hacker becomes an "insider threat" when he/she physically accesses the distributed generation source and launches attacks from a trusted node in the power network. A systemic view of cybersecurity is needed in this situation to identify anomalous behavior and

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block it before it can disrupt operations. This presentation will offer an empirically validated 9-layer security architecture for power systems developed at NREL that has the potential to mitigate the risk from physically and logically compromised distributed generation sources on the electric grid.

With the exception of the MISO tour, all upcoming meetings will take place the IPL Morris Street location in the safety room from 6:00 - 8:30 PM with the first 30 minutes for networking. Registration and detailed information are available at the Section website.

Congratulations IEEE Fellows and Senior Members

The IEEE CIS would like to congratulate our recently elevated IEEE Senior Members.

Zhihong Chen – Senior Member

Bio is available below. If we have missed a recent elevation of anyone, please let us know by contacting Umama Tasnia at <u>umama.tasnia.us@ieee.org</u>

We want to congratulate all our members on significant milestones.

Dr. Zhihong Chen is an Associate Professor of Electrical and Computer Engineering at Purdue University. Zhihong Chen received her B.S. degree in physics from Fudan University in 1998, and her Ph.D. degree in physics from the University of Florida in 2003. After two years of postdoctoral research at IBM T.J. Watson research center, she became a research staff member in the Physical Science Department. Her research focused on design and fabrication of high performance carbon based devices and circuits. In 2008, she was appointed as the manager of the Carbon Technology Group at IBM, where she was in charge of evaluating the potential of carbon materials and the development of novel carbon based technologies for commercial applications. Since Oct. 2010, she joined the School of Electrical and Computer Engineering at Purdue University, as an Associate Professor. Dr. Chen received many awards: Forbes' Top 5 Nanotech Breakthroughs of 2006, Winner of the Industry Week's Technologies of the Year, Finalist of World Technology Award, Materials Category, IBM Research Achievement Award in 2006, Finalist of Small Times Best of Small Tech Awards, in the Category of Researcher of the Year in 2007, Intel Early Career Faculty Honor Program Award in 2012, Joel and Ruth Spira Excellence in Teaching Award in 2013 and Excellence in Research Award, Purdue University Seed for Success in both 2013 and 2014.

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\$300 discount if you register by March 22, 2016. We are also offering a special 50% discount on the April seminar to attendees of previous D.L.S. seminars who used the 1st or 2nd edition.

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Purdue Aerial Robotics Team IEEE

By Yash Nain and Darius Pang

The Purdue Aerial Robotics Team designs and constructs an unmanned aerial system (UAS) to compete in the AUVSI SUAS competition, where their solution will be tested with a series of challenges that change year by year. The committee is one of the largest in IEEE, with their own mechanical, electrical, and software teams that work on the aircraft and the electronics and software, respectively. Purdue's team holds the distinction of being one of the only teams that has designs from scratch at the beginning of every year, as opposed to other schools that opt to customize a kit plane.



Throughout the year, members utilize their knowledge to design a plane that is capable of performing the tasks it needs to in its respective year. For the mechanical team, the process begins with the brainstorming of new ideas and possibilities, from which the best ideas are considered for the first prototype. After the design is fleshed out, the plane is fully designed using a CAD software (either SolidWorks or CATIA), so the team has a better idea of what will appear in the final product. This is followed by prototyping the design, using raw materials to fully construct a working plane, which is then tested, and used to build a better plane.

Electrical, on the other hand, works on the most optimal design for their PCBs, along with finding ways to integrate the various electrical components needed to make the UAS fly autonomously. The team has decided to include dedicated Power Supply, Sensor, and Antenna Tracker boards in addition to its Flight Controller board. Software works closely with Electrical to create the full OS on which the plane runs. They also develop the Ground Control Station GUI and its interface to the aircraft. All of these factors are integral to the team's success at the competition.

Aerial Robotics has been a part of the Purdue IEEE student organization for nearly two decades, but a few years ago the committee had become all but defunct, with the experienced members graduating out and other members moving on, which left the team to four freshmen with limited design experience and even less design on how to build a plane. The first year consisted of these freshmen learning the necessary skills in order to create an effective design, skills that are passed on to our newer members every year. In the future, veteran members are creating learning modules to make the learning curve much easier for newer members to grasp. This is being done by creating a full curriculum that is simple enough for people with little to no experience in design to follow, so people who have little to no engineering experience will be able to learn applicable skills.

This year's competition will take place in June in St. Inigoes, Maryland, so the team is gearing up to have their design competing with the best. With luck, the team will be able to place within the top ten.

Yash Nain: Sponsorship Coordinator - Phone (774-266-5131) - <u>ynain@purdue.edu</u>

Darius Pang: Captain and Vice President of Purdue IEEE - Phone (626-688-9722) - pangd@purdue.edu

2016 IEEE CIS EnCON (Engineering Conference) Saturday, Early November @ Central Indiana

Our annual EnCON conference will take place in Indianapolis on one of the first two Saturdays in November. The conference will offer many great technical presentations, hands-on workshops, professional development hours (PDH's), a couple plenary speakers, a student poster contest, and plenty of networking opportunities over a tasty breakfast, delicious lunch with a keynote speaker, healthy breaks, and a wonderful evening reception and awards banquet. Please plan on attending this year!

Time	Saturday - Early November 2016			
7:15 - 8:00 AM	Registration & Breakfast Buffett			
8:00 - 9:00 AM	Opening Session & Plenary Speaker Speaker TBD			
	Track 1: Drone	Track 2: Renewable	Track 3: Career	Hands on Workshop
9:00 - 10:30 AM	TBD Room Security (1.5 PDH's)	TBD Room (1.5 PDH's)	TBD Room Resume & Cover Letter (1.5 PDH's) IEEE PACE	(6 PDH"s) Computer Lab
10:30 - 11:00 AM	Break Ne	tworking Student Poster		Break Networking
11:00 - 12:30 PM	Future (1.5 PDH's)	(1.5 PDH's)	Job Interview, Offer Negotiation and Networking (1.5 PDH's)	
12:30 - 2:00 PM	Lunch & Keynote Speaker		Lunch & Keynote Speaker	
	Track 1: Autonomous Vechile	Track 2: Power	Track 3: Entrepreneurship	
2:00 - 3:30 PM	TBD Room	TBD Room Smart Grid	TBD Room Tech Startup for Beginners	
2:00 - 3:30 PM	(1.5 PDH's)	(1.5 PDH's)	(1.5 PDH's)	
3:30 - 4:00 PM	Break Networking Student Poster Voting		Break Networking	
4:00 - 5:30 PM	(1.5 PDH's)	Micro Grid (1.5 PDH's)	Protecting Intellectual Properties: Business Idea. Trade Secret & etc. (1.5 PDH's)	
5:30 - 6:00 PM	Break & Networking			Networking & End
6:00 - 8:00 PM	Evening Reception & Award Banquet Reception Speaker Company Award Ceremony & Closing Remark			
8:00 - 8:30 PM	Networking & End			

Preliminary Program:

Join Conference Facebook Page: <u>https://www.facebook.com/IEEECISEnCON/</u> For More Information, Visit Conference: http://www.cis-ieee.org/EnCON/

2016 Meeting Calendar				
Date	Host	Subject	Location	
Monthly	CIS	Executive Committee Meetings	Internet/Phone Bridge	
Weekly	CIS EnCON	EnCON Committee Meetings	Internet/Phone Bridge	
March 10	CIS	IEEE-CIS Networking Dinner	Hulman Memorial Union	
March 22	PES/IAS/PELS	<u>Seminar - Forensics</u>	IPL Morris Street	
April 19	PES/IAS/PELS	<u>Tour - MISO</u>	Mid-Continental Independent System Operator (MISO)	
May 17	PES/IAS/PELS	Seminar - Cyber-Security	IPL Morris Street	
June 26	CIS	Annual Baseball Outing	Victory Field	
Check the <u>Section web page</u> for details and current information.				

ADVERTISER EVENT

April 12-14, 2016	DLS: <u>dlsemc.com</u>	See Advertisement on Page 4	Northbrook, IL
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Central Indiana Engineering Web Links

ACEC	American Council of Engineering Companies, Indiana	acecindiana.org
ASCE	American Society of Civil Engineers	inasce.org
ASME	American Society of Mechanical Engineers	sections.asme.org/central_indiana
ASM-INDY	American Society for Metals - Indianapolis	asm-indy.org
CIECN	Central Indiana Engineering Consultants' Network	indy-engineer.dnsalias.com
CINLUG	Central Indiana Linux Users Group	cinlug.org
IHIF	Indiana Health Industry Forum	ihif.org
INCOSE	International Council on Systems Engineering	incose-coa.org
INDSPE	Indiana Society of Professional Engineers	indspe.org
INDYASHRAE	American Society of Heating, Refrigeration, and Air Conditioning Engineers	indyashrae.org
NSBE-IAE	National Society of Black Engineers - Indianapolis Alumni Extension	nsbe-ip.org
PIMCIC	Project Management Institute - Central Indiana Chapter	pmicic.org
SAE	Society of Automotive Engineers, Indianapolis	saeindiana.org
Scientech	Scientech Club in Indianapolis	scientechclub.org
SHPE	Society of Hispanic Professional Engineers	shpe-indiana.org
SIM	Indianapolis Chapter of Society for Information Management (SIM)	SimNet.org
SWE-CI	Society of Women Engineers - Central Indiana Section	swe-ci.com
Techpoint	A diverse collection of technology-based Indiana industries.	Techpoint.org

Distribution: The Reporter is made available electronically to the approximately 1800 IEEE members within the Central Indiana Section including student members and faculty of Purdue, Rose-Hulman Institute of Technology, IUPUI, Ball State and Indiana State

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Editorial Policies

Each issue of The Reporter typically references three months - the month in which it is published and the following two months. The Reporter is typically published in March, June, September, and December.

Material to be included should be submitted mid-month prior to the month it is to be published. For example, material intended for the September issue should be submitted to the Editor by August 15. The Editor will send a reminder to all IEEE Central Indiana Section entities by the 25th of the month to submit their updates.

Copy should be submitted electronically. Photographs are desirable. Advertisements are welcome. Contact the editor, Umama Tasnia, for layout sizes and rates at <u>umama.tasnia.us@ieee.org</u>

How Do You Communicate??

Follow Section Social Media

Want to know what is happening in Central Indiana Section? Don't know where to look? Already inundated with eNotices? Need to ask a question? Want to find an expert? Got a meeting idea?

Here are some of many communication channels available in Central Indiana Section



- Conference Facebook Page: 2016 leee-Cis Encon Conference & Workshop <u>https://www.facebook.com/IEEECISEnCON/</u>
- Section Facebook Page: IEEE Central Indiana Section https://www.facebook.com/IEEE-Central-Indiana-Section-1426165320970908/?fref=ts
- WIE Facebook Page: IEEE CIS Women in Engineering <u>https://www.facebook.com/IEEE-CIS-Women-in-Engineering-</u> <u>223901364430386/?fref=ts</u>
- Student Branch members are encouraged to join "IEEE Region 4 SAC": <u>https://www.facebook.com/groups/r4sac/</u>


