

Calendar of Events

In March

Thurs., March 4, 7:30am
[NetSecure'10](#)
 Fox Valley Subsection

Tues., March 9, 5:00pm
[PCB Power Distribution](#)
 Electromagnetic &
 Women In Engineering

Tues., March 9, 7:00pm
[Executive Meeting](#)
 IEEE-Chicago Section

Tues., March 9, 7:00pm
[Electric Vehicle Insulation](#)
 Dielectrics

Wed., March 10, 5:30pm
[Gas Engine Generators](#)
 Power & Energy

Wed., March 17, 5:30pm
[Switchgear Design](#)
 Industry Applications

Tues., March 23, 7:00pm
[Resilience Engineering](#)
 Cybernetics

Sat., March 27, 6:30pm
[Awards Dinner Dance](#)
 IEEE-Chicago Section

Mon., March 29, 6:30pm
[Finding Consulting Jobs](#)
 Consultants Network

In April

Sat. April 10, 9:00am
[Productive Meetings](#)
 IEEE-Chicago Section

Sun-Tues. April 11-13
[Networking, Sensing & Control](#)
 Cybernetics

Thurs-Fri. April 22&23
[Control & Modeling: Biomedical Systems](#)
 Control Systems

Sat. April 24, 9:00am
[Leading When Not In Charge](#)
 IEEE-Chicago Section

In May

Mon-Fri. May 17-21
[Collaborative Technologies](#)

Please email upcoming events to [Work In Motion](#) for inclusion in the calendar.

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This Month's Articles

Chair's Column: Chicago Leaders Get Ideas at Region 4 Conference

Bill Nartker took away from **IEEE Region 4 Winter Conference** ideas for a wind farm tour, GOLD affinity group and spoke about the Chicago Fund and website improvements. [\[more\]](#)

Meet the IEEE-Chicago's Five New Fellows at the Awards Dinner Dance!

Chang Liu, Tom Cloonan, Kevin Lynch, Dan Schonfeld, and Jafar Saniie will be attending the **IEEE-Chicago Section Annual Awards Dinner Dance** on Saturday evening, **March 27** at **Manzo's Banquets** in Des Plaines. [\[more\]](#)

Resilience Engineering Topic of First Meeting of Chicago SMC Chapter

Christopher Nemeth will speak at the first meeting of the **Chicago Chapter of the IEEE Systems, Man and Cybernetics Society (SMC)** on **March 23rd** at **Northwestern University** in Evanston. [\[more\]](#)

IEEE-Chicago to Offer Management Classes at Harper College

The Chicago Section will offer **Positive and Productive Meetings** on April 10th and **Leading When You're Not In Charge** on April 24th. [\[more\]](#)

New IEEE Fellow Helps Monitor Structural Health of Bridges

Jafar Saniie of **Illinois Institute of Technology** was cited for his "contributions to ultrasonic signal processing for detection, estimation and imaging." [\[more\]](#)

Academy Award Winning Electrical Engineer Gets Washington Award

2010 Washington Award Winner Alvy Ray Smith regaled **Chicagoland Engineering Awards Banquet** attendees with stories of the early days of computer animation. [\[more\]](#)

At DuPage Expo, IEEE Booths Teach Youngsters Electrical Engineering

The **IEEE Electromagnetic Compatibility (EMC) Society** and **Women In Engineering (WIE)** offered highly interactive exhibits for future engineers. [\[more\]](#)

Chair's Column: Chicago Leaders get ideas at Region 4 Conference



The Chicago Section was well represented at the **IEEE Region 4 Winter Conference** in Detroit on January 24 and 25. **Bernie Sander** (Central Area Support Chair), **Jim Fancher** (Regional Technical Policy Activities Coordinator), **Jim Phillips** (Northwest Subsection), **Sharon Phillips** (Chicago Section Secretary), and **Louis Giorkas** (Fox Valley Subsection) and I attended the conference, which brings together IEEE sections from Illinois, Indiana, Iowa, Michigan, Minnesota Nebraska, North and South Dakota, Ohio, Wisconsin and the Windsor area of Canada.



The meeting took place at the Ren Center in downtown Detroit with a view beyond the river of Canada.

INFO SESSION



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At the conference, Region 4 members showed the many resources available on the **IEEE website** to keep and attract new members, including the [Career Navigator](#), which provides tips for unemployed engineers to find work. Region 4 has also named the **Jack Sherman Outstanding Member Award** to honor the Chicago Section's memorable and dedicated late volunteer.

The best part of the conference was the section chairs' reports. Most sections talked about an important meeting they had given, with over half talking about their visit to a wind farm. I have asked our Special Events Coordinator, [Yellapantula \(Ram\) Ramakrishna](#), to see about planning an outing to a wind farm. Please contact him if you're interested in helping out.

We also lack a **GOLD (Graduates Of the Last Decade)** affinity group. Many of the other sections have them and they are growing. Our section has the largest number of members in this category, but we do not have a group. If you would like to help conduct a survey to see where the biggest population of GOLD members is so that we could start this group, please [contact me](#).

In my report, I talked about our updated website and the **Chicago Fund**. (See Chicago Fund tab above.) Thanks to our energetic new Webmaster [Robert Pellegrini](#), we have made many improvements on the website within the last month. [Michele Beaulieux](#) is now responsible for getting all IEEE meetings on the website calendar. Please send them your suggestions and news.

Sincerely,
[William \(Bill\) Nartker](#)
IEEE-Chicago Section Chair

P.S. Be sure to [register](#) before **March 20th** to reserve your spot and save on the ticket price for the **IEEE-Chicago Section Annual Awards Dinner Dance on Saturday, March 27th**.

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Meet the IEEE-Chicago's Five New Fellows at the Awards Dinner Dance!

The place to be on Saturday evening **March 27** will be **Manzo's Banquets** in Des Plaines for the **IEEE-Chicago Section Annual Awards Dinner Dance**. The Section will honor its five 2010 Fellows: **Tom Cloonan** of **ARRIS**, **Chang Liu** and **Kevin Lynch** of **Northwestern University**, **Jafar Saniie** of **Illinois Institute of Technology** and **Dan Schonfeld** of the **University of Illinois at Chicago**. All five new Fellows have confirmed their attendance. Chicago Section Outstanding Member and Distinguished Service Awards will also be announced. Chicago Section Chair **Bill Nartker** will serve as master of ceremonies. Once again, the dancing will follow the awards. Mark your calendar! Festivities will begin at 6:30pm with dinner served at 7:30pm. Space is somewhat limited, so **register before March 20th to reserve your spot and save**: \$45 per person, \$85 per couple, \$25 per student, and \$35 per IEEE life member. Afterwards, \$55 per person, \$100 per couple, \$35 per student, and \$40 per life member. To register, [email](#) Jianhui Wang or call 630-252-1474. Don't miss this unique opportunity to meet and congratulate the honorees and network with your peers!



2009 IEEE Fellow Kenneth Zdunek (right) poses with his wife and parents at last year's IEEE-Chicago Dinner Dance.

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Resilience Engineering Topic of First Meeting of Chicago SMC Chapter



Christopher Nemeth

The **Chicago Chapter of the IEEE Systems, Man and Cybernetics Society (SMC)** will be kicking off with a presentation by IEEE-Chicago Senior Member **Christopher Nemeth** titled **Considering Resilience Engineering**. This first meeting will take place on at **7:00pm on March 23rd at Northwestern University** in Evanston.

Nemeth, who is Group Leader for Cognitive Systems Engineering at **Applied Research Associates**, will use examples from healthcare to demonstrate resilience and its engineering. The ability to foresee and adapt to changing conditions increases a system's ability to survive despite variations in its environment. Resilience promises to replace traditional notions of risk assessment by shifting attention to a prospective view that anticipates future events that may challenge system performance. For complete event info, [click here](#).

The mission of the Chicago Chapter of the SMC Society is to serve the interests of Chicago area members by promoting the theory, practice, and interdisciplinary aspects of systems science and engineering, human-machine systems, and automatic control systems. The focus of the chapter's activities will be the development of systems engineering technology, including problem definition methods, modeling, and simulation, methods of system experimentation, human factors engineering, data and methods, systems design techniques and test and evaluation methods. For more information or to volunteer to help, please contact Chapter Chair [Ganga Jayaraman](#).

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IEEE-Chicago to Offer Management Classes at Harper College



Marianne Rowe-Dimas

In April, the Chicago Section will offer two Saturday morning classes taught by popular, returning instructor **Marianne Rowe-Dimas**. In the April 10th session on **Positive and Productive Meetings**, learn how to foster collaboration, promote positive communication and make every minute count. Also, gain insight into how to disagree or interrupt agreeably. In the session on **Leading When You're Not In Charge** on April 24th, learn how to get others to be receptive to your ideas, views and recommendations and how to adapt your personal style to influence and work more effectively with others. [Click here](#) for more detail. For questions and registration, call Harper College at 847.925.6300. Early Registration is recommended.

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New IEEE Fellow Helps Monitor Structural Health of Bridges



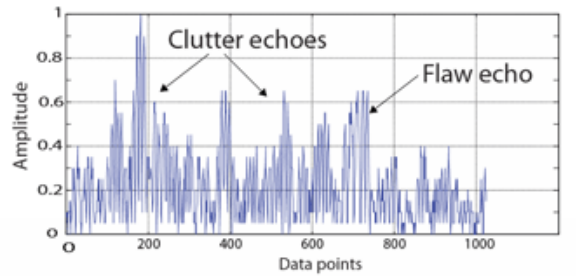
Jafar Saniie

If, after the collapse of the I-35W Mississippi River bridge in Minnesota, you've been nervous driving over long expanses suspended in air, you'll be happy to know that one of the new IEEE-Chicago Fellows is developing techniques for early detection of structural defects in bridges. **Jafar Saniie**, Filmer Distinguished Professor and Associate Chair of the Electrical and Computer Engineering Department at the **Illinois Institute of Technology (IIT)** was cited for his "contributions to ultrasonic signal processing for detection, estimation and imaging."

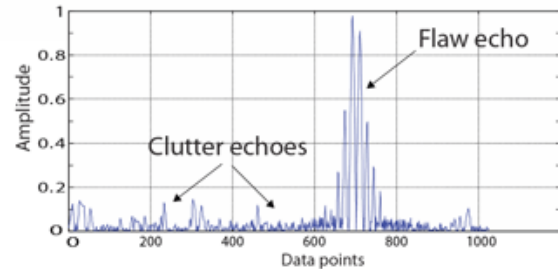
Saniie's career has focused on detecting various "targets," including micro-cracks in bridges, in the presence of clutter. His challenge is like trying to see a squirrel, not on a bright sunny day, but in the fog.

The **Electric Power Research Institute** initially funded Saniie's research in order to detect dents and cracks in tubes and corrosion in the steel plates supporting the tubes in steam generators used in nuclear power plants. Detecting such defects is complicated by the fact that the plates are behind the tubes and can only be viewed through them. Ultrasonic waves reverberate and generate multiple echoes in the tubes, making defects essentially invisible.

To address such high clutter situations, Saniie, with a team at **Purdue University**, developed "Split-Spectrum Processing (SSP)" – now a term yielding thousands of hits on Google. The SSP method of frequency diversity testing, combined with statistical processing, improved the detection rate for such evasive targets. Because signals from some frequency bands are very cluttered, SSP changes frequencies in order to see the target through a combination of frequencies. This frequency diversity principle first decomposes the broadband signal into a narrowband ensemble exhibiting different signal-to-noise ratios and then recombines them nonlinearly using order statistic filters or neural networks for improved target detection.



Ultrasonic Experimental Data from a Steel Block



Flaw Detection using Split-Spectrum Processing

In unfiltered form, the ultrasonic waves detect echoes from clutter as well as from flaws, such as cracks, in the steel. Split-Spectrum Processing reduces the clutter to reveal the flaws.

Saniie's current research involves embedding these advanced signal processing ultrasonic detection algorithms inside a microchip as a "system-on-chip" for use in smart sensor instruments.

For Saniie, being named a Fellow is especially heartening because of the message that it sends to his students. It says that the work they are doing is important: it is being recognized. Hopefully, Saniie and his students will continue advancing the knowledge in this field. And, we'll have no more bridge collapses!

*This story is part of an ongoing series profiling the 2010 IEEE Fellows from the Chicago Section. **Dan Schonfeld** was featured in the January e-ScanFax, **Tom Cloonan** in February, and the April and May issues will profile **Chang Liu** and **Kevin Lynch**. To view the previous profiles, click on the newsletter archives tab above.*

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Academy Award Winning Electrical Engineer Gets Washington Award

On February 19, at the **Chicagoland Engineering Awards Banquet** at the University Club of Chicago, **2010 Washington Award Winner Alvy Ray Smith** regaled attendees, some of whom were grade school and high school winners of **Engineering Week** contests, with stories of the early days of computer animation. Smith, who was involved in the beginning of **Altamira**, **Pixar**, **Lucasfilm**, and **New York Tech**, had been part of several Academy Award winning computer animation teams.



Members of the FIRST Lego League 2010 Illinois State Champion iLego Team from Lincoln Middle School in Mount Prospect demonstrate their robot to Washington Award Winner Alvy Ray Smith. Ariel Maret, far left, truly enjoyed the experience. "We've been playing with Legos as kids," she said, "but this was a whole other level!"

Smith began his speech by describing a discussion he had with the actor **Richard Dreyfuss** at what Smith called the "Nerd Academy Awards," where special effects and other feats of technological prowess are honored. Dreyfuss said, "We're both indispensable to each other. . . . We're going into the 21st century together . . . I hope." That "I hope," Smith explained, was an illusion to actors' fear of being replaced by simulations. Smith returned to that fear at the end of his speech, noting that we don't know how the human mind works and so people will always be indispensable. But, he added a twist: "Animators are actors. An actor makes you believe that their body is someone other than they are." He then showed a clip from the 2008 release, **The Curious Case of Benjamin Button**, in which Button's face, but not his body, was computer generated.

This was quite an advance from the clip Smith showed from a quarter century earlier, the result of Smith's "big break." **Paramount Pictures** asked **Lucasfilm** to create a 60 second computer animation for **Star Trek II: The Wrath of Khan**, released in 1982. At that point, computers weren't fast enough to do movie-quality animation. But, video resolution was sufficient for the application: **Captain Kirk** watched a demonstration of the effects of the Genesis Device on a barren planet on a television screen.

With that successful animation under his belt, Smith went on to found **Pixar**. Like most entrepreneurs, Smith found getting funding the hardest part. After an almost certain deal with **Ross Perot** fell through, **Steve Jobs** provided the initial funding in exchange for 70% of the business. The rest is computer animation history.

Earlier in the evening, as Smith introduced himself to the representatives of the many sponsoring engineering societies at the main table, he made a point of stopping in front of Chicago Section Chair **Bill Nartker**. "IEEE," Smith said, "That's my society!" Indeed, Smith holds a B.S. in Electrical Engineering from **New Mexico State University** and a PhD in Computer Science from **Stanford University**.

IEEE is proud to see yet another electrical engineer join the distinguished ranks of Washington Award winners.



IEEE members and their wives—George and Judy Thomas, Dennis and Pat Lamont, and Bill and Darlene Nartker—enjoyed the Chicagoland Engineering Awards Banquet.

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At DuPage Expo, IEEE Booths Teach Youngsters Electrical Engineering

On Saturday, February 20, at the 26th annual **DuPage Area Engineers Week Expo** at the **Illinois Institute of Technology (IIT)**, parents escorted their children, kindergarteners through 8th graders, through the two floors full of exhibits, theater presentation shows, and interactive exercises.

At the **IEEE Electromagnetic Compatibility (EMC) Society** exhibit, **Bob Hofmann** demonstrated how compact fluorescent (CF) bulbs and wall-mounted light dimmers cause AM radio interference. **Craig Dinsmore's** homemade Van de Graaff electrostatic generator was a great hit, literally raising the hair of young volunteers. **Jerry Meyerhoff's** shielding poster paper and demonstration used a radio-controlled toy car to illustrate the physics and problem solving techniques EMC engineers use to

control radio interference propagation.

At the **IEEE Women In Engineering (WIE)** exhibit, **Sharon Phillips**, **Louann Devine**, and **Vickie Peters** offered an interactive hands-on activity. The young participants soldered components as they learned the function of electronic circuit boards. A few lucky junior engineers won a soldering iron kit to take home.



Louann Devine (right) shares engineering insights with visitors at the IEEE WIE exhibit.

The **IEEE-Chicago Section** exhibit on Intelligent Transportation Systems included a live demonstration of the Gateway Traveler Information System, a free service supported by the **Illinois Department of Transportation (IDOT)**, that allowed students and their parents to check their route home for incidents, events, and construction and see the congestion reported. **Connie Kelly** gave booth visitors Travel Information Cards with the area telephone numbers for non-emergency non-911 calls.

Judging from the packed hallways, clusters of young people crowding the exhibit tables and their animated conversations, the free event was a great success!

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