IEEE Madison Section Newsletter

Volume 13, Number 2 — Serving IEEE Members of South Central Wisconsin — February 2010

Growing Your Business through Government Sales

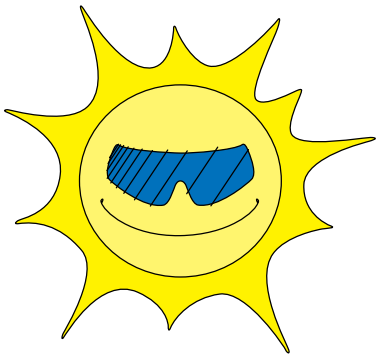
Date/Time: Thursday, February 18, 2010, 11:45 AM – 1:00 PM
Speaker: Denise Reimer – Program Manager, Business Procurement Assistance Center, MATC Madison
Location: Rocky Rococo's Pizza, 7952 Tree Lane (Madison Beltline Hwy. at Mineral Pt. Rd.), 608.829.1444
Menu: Pizza buffet, salad and soft drinks ($5.00 members, $10.00 non-members, free for UW-Madison student members)
RSVP: by February 15th to Charles Gervasi via e-mail (cj@cgervasi.com)

Non-member guests are always welcome!

The Business Procurement Assistance Center (BPAC), funded in part by the U.S. Department of Defense, was established in 1988 to provide technical and marketing assistance to Wisconsin businesses interested in government contracting. This presentation will discuss government contracting, its process, registering your business for consideration, and becoming a responsible contractor. This is a "must attend" for those firms wishing to enter the realm of government contracting! Visit the website at http://matcmadison.edu/BPAC/.

Ms. Denise Reimer is the Program Manager of the Business Procurement Assistance Center for the Greater Madison Area. For several years, Denise has led the center's key service: to support local business in their quest to participate in government contracting.

Why Doesn't My Electricity Come from the Sun? Future Materials for Harnessing Solar Energy



Date/Time: Thursday, March 18, 2010, 11:45 AM – 1:00 PM
Speaker: Mike Arnold, Assistant Professor - Department of Materials Science & Engineering, UW-Madison
Location: Rocky Rococo's Pizza, 7952 Tree Lane (Madison Beltline Hwy. at Mineral Pt. Rd.), 608.829.1444
Menu: Pizza buffet, salad and soft drinks ($5.00 members, $10.00 non-members, free for UW-Madison student members)
RSVP: by March 15th to Charles Gervasi via e-mail (cj@cgervasi.com)

Non-member guests are always welcome!

Talk abstract and presenter bio will be posted online when available.

Software Tool Helps Web Developers Identify Seizure-Causing Content

Date/Time: Thursday, April 15, 2010, 11:45 AM – 1:00 PM
Speaker: Gregg Vanderheiden Ph.D., Director Trace R&D Center
Location: Rocky Rococo's Pizza, 7952 Tree Lane (Madison Beltline Hwy. at Mineral Pt. Rd.), 608.829.1444
Menu: Pizza buffet, salad and soft drinks ($5.00 members, $10.00 non-members, free for UW-Madison student members)
RSVP: by April 12th to Charles Gervasi via e-mail (cj@cgervasi.com)

Non-member guests are always welcome!

Talk abstract and presenter bio will be posted online when available.

New IEEE Madison Section Senior Members

Congratulations to IEEE Madison Section member ***Hongrui Jiang*** who recently became a Senior Member of the IEEE.

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Capital Science & Engineering Fair

The Capital Science & Engineering Fair (CSEF), supported by the Madison Section of the IEEE, is a regional high school science fair attracting students doing original science, technology, math or engineering research. The fourth annual CSEF will be held in Madison on February 27, 2010 and is open to high school students from Columbia, Dane, Dodge, Green, Iowa, Jefferson, Lafayette, Rock, and Sauk counties. Anyone interested in judging at CSEF should please contact the CSEF Judging Chair, Laura Balzano (sunbeam@ece.wisc.edu).

But You Don't Look Like an Engineer...

BY SHEILA S. HEMAMI AND MARJOLEIN C.H. VAN DER MEULEN

As female engineering professors, we often find that people do a double take when we tell them what we do.

"There are women?" they say. "In engineering?" When we both started our careers, in the mid-1990s, we thought women would be better represented in engineering schools by now. As the numbers at Cornell University and nationwide show, we've come a long way but still have further to go. In Cornell's College of Engineering, nearly 30 professors are women. This number corresponds to the national average of 12 percent. Together we have a combined career's worth of hiring experience in the two largest departments in our college.

Our experiences motivated us to pursue a National Science Foundation grant that led to the formation of the CU-Advance Center. The foundation's Advance program was started in 2001 to provide large, "institutional transformation" awards to universities for recruitment, retention, promotion, and advancement of women in the sciences and engineering. Through this activity we have met many more female professors and seen hiring practices across Cornell's other colleges. We both spend a lot of time advising faculty colleagues on how and why to hire diversely, and would like to debunk some of the common myths we frequently hear. While names have been omitted to protect the innocent, nothing is fictitious in this discussion.

Before tackling these myths, we'd like to stress that today's hiring determines the face of the engineering faculty for the next 30 years. What does that face look like in 2010? How do we want it to look in 2040? In 2050? And what will our students look like? These important questions require us to make strategic and diverse faculty hires as we move forward.

The Top 10 Myths About Hiring Diversely

10. "It's the recruiting committee's problem, not mine." Recruiting is an activity in which all faculty members should be continually engaged. We should be contacting up-and-coming graduate students and postdoctoral researchers at conferences and through professional networks. Developing a personal relationship with a young researcher as she matures over the course of several years can provide a substantial advantage when she is deliberating over faculty job offers. It also sends a positive message about departmental climate and collegiality; not all senior academics take the time or effort to reach out to young researchers.

9. "We don't have any female candidates because no women applied." To continue the theme of No. 10, a "search committee" is not an envelope- or attachment-opening committee. Its members should be actively using their department's database or creating their own by

polling their colleagues locally and contacting others nationwide to cast as broad a net as possible.

8. "Hiring women is the problem of female professors." How many different ways can we say this: All faculty members should be actively engaged in the recruiting process.

7. "There are no women or underrepresented minority scholars in our field." Twenty years ago, and perhaps even 15 years ago, this statement was true in some fields. Today, it is simply not true. When challenged, we can and will identify outstanding diverse candidates. After all, our competitors do.

6. "Everybody knows the stars in the field, and there aren't any women." To quote from a 2009 New York Times article on the subject, "you just have to pay attention." In our own fields, we often hear there are no women, even from individuals whose collaborators include senior women. When we point these women out, the response is inevitably: "Oh, yes, I forgot about her ... and her. ..." This statement is as unacceptable nowadays as No. 7.

5. "She'll never come here, her husband is in (fill in the blank)." We never discuss a man's spouse until the offer is on the table, so let's treat women similarly. Never superimpose your own behaviors onto others by predicting how they might react to an offer.

Interview her, and when you make the offer, do everything you can to woo them both.

4. "She's signed, we got her!" We know too well that retention starts the instant an offer has been accepted. In recent years at Cornell we lost two tenured women whose partners were working elsewhere at the time we hired them. Six years later when the couples were still living apart, the women looked for other jobs and left. This challenge is not limited to women. Once a scholar has agreed to join the faculty, the focus must switch from recruitment to retention, which is equally important.

3. "We want to hire a man, but we'll also hire a woman if we get an extra faculty line." Searches should consider all candidates, and not relegate the hiring of women to "extra" or "bonus" hires. If the woman is good enough to hire, she's good enough for the open line.

2. "Money is tight; we can't afford to consider diversity." As we previously mentioned, all searches should consider all potential candidates. Considering diversity is not a search option to be used only when it's convenient.

1. "We need quality, not diverse, faculty members." We'd like to say that quality and diversity are completely unrelated characteristics. In fact, they are not. Numerous studies have shown that women are held to higher standards than their male counterparts, and in fact need to be more productive than men to be seen as equally productive. So the next time you are deciding between a male and a female candidate, a rational scientific decision would be to hire the woman.

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Sheila S. Hemami is a professor in Cornell University's School of Electrical and Computer Engineering. Marjolein C.H. van der Meulen is a professor in Cornell's Sibley School of Mechanical and Aerospace Engineering. They are founders of the CU-Advance Center, which promotes women in science and engineering.

Why Should You Become a Licensed Professional Engineer?

BY MITCHELL A. THORNTON

When contemplating professional licensure, the central question for many electrical, computer and software engineers is: How will licensure benefit me? I will answer that question in this article, but first I'm going to review some of the purposes of professional engineering licensure.

The word "license" means official or governmental permission to do something. Regulating agencies usually enact licensing laws for the protection of the public. As an example, states require operators of motor vehicles to hold licenses before they can legally drive on public roads. The idea being that some type of minimal competence in driving should be demonstrated before an individual is allowed on the roads in command of a very large and heavy piece of machinery moving at a fast speed. Almost everyone I have encountered (with the exception of a few teenagers less than sixteen years of age) agree that requiring drivers to be licensed protects the public.

The very same idea is behind licensing professional engineers. It is unarguable that many engineers practice in areas that affect the health, safety and welfare of the public. Whether it is practice in the power utility industry, the design of a microcontroller to be used in a medical implant device, or the design and implementation of algorithms for an air traffic control system — the examples are numerous. All U.S. jurisdictions agree with this viewpoint and have licensing laws in effect. These laws differ slightly, but they all refer to some form of provision of protection for public safety.

At this point you may be thinking, "Wait! I am a good engineer and I create technology that could affect the public and I am not licensed nor does my employer show any interest in me becoming licensed." This is often the case in our profession since a large majority of practicing electrical, computer and software engineers are employed by companies. The licensing laws across the U.S. contain "industry exemption" clauses. These clauses state that individuals who practice engineering exclusively for their employer do not need to be licensed as long as those individuals do not offer engineering services to the public.

Another common response is "I am a good engineer already, just look at all the great things I have done professionally. Why should I have to go and take yet another test to show how good I am at engineering?" The analogy with driver licensing is useful to consider this viewpoint. It is true that both the winner of the latest NASCAR championship race as well as a young person just turning sixteen must both hold driver's licenses to legally operate vehicles. However, it is not about how "good" you are, rather licensing is about establishing "minimal competence" in an area in order to protect public safety. Such minimal competence must be demonstrated by both the NASCAR champion and the sixteen-year old before they are allowed to drive. The same is true for the practice of engineering. The Fundamentals of Engineering (FE) and Principles and Practice of Engineering (PE) examinations are not designed to grade the skill level of a person practicing engineering, they are about demonstrating some basic minimum threshold of knowledge so that it can be expected no harm will come to the public if that person is allowed to practice engineering.

Now I will answer the question "How will licensure benefit me?" You should be licensed if you have aspirations to work as an engineering consultant or start your own engineering company. Many electrical and computer engineers tell me they wish to eventually start their own companies. Under most U.S. state laws, it is illegal to start your own engineering business without being licensed or at least having a company officer in charge of engineering who is licensed. Licensure gives you the privilege to offer engineering services to the public.

Although it is true that some large companies do not promote licensure among their engineering employees, this is not true for all companies. In fact, some companies do encourage licensure and offer incentives. Even if your company does not actively encourage licensure, gaining this professional credential would probably be viewed favorably by your employer and would certainly demonstrate your sincerity and professionalism.

Whether IEEE members are licensed or not, they abide by a code of ethics. The very first element in the IEEE Code of Ethics mentions the "…safety, health and welfare of the public…." This language is practically identical to that found in the various engineering licensing statutes of the U.S. jurisdictions. Abiding by the IEEE Code of Ethics is implicitly agreeing with and supporting the intent of professional engineering licensing.

There are other reasons that licensing can be beneficial, but I will end this article with one final thought. Ask yourself if anything you do in your professional engineering activities affects the safety, health or welfare of the public. If the answer to this question is "yes," then perhaps you should consider obtaining licensure for both ethical and professional career reasons.

To learn more about licensure and registration, see:

IEEE-USA's Licensure and Registration Committee

[www.ieeeusa.org/volunteers/committees/lrc/]

NCEES

[www.ncees.org]

The National Society of Professional Engineers (NSPE)

[www.nspe.org]

Mitchell A. Thornton, Ph.D., P.E. is a professor of computer science and engineering and a professor of electrical engineering at Southern Methodist University in Dallas, Texas. He currently serves as chair of IEEE-USA's Licensure and Registration Committee.