



The IEEE

# Newsletter

PUBLICATION OF THE NORTH JERSEY SECTION OF THE INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS

## Congratulations Third Millennium Medal Recipients!



5/7/00

*Front (from left):* Richard F. Tax, Anne M. Giedlinski

*Middle:* R. V. Rebbapragada, Michael I. Liechenstein, Agrawal Prathima, Richard V. Snyder, John A. Baka

*Standing:* Kenneth J. Oexle, Arthur H. Greenberg, Howard H. Leach, Jr., Wilhelm M. Schmidt, Amy E. Galarowicz, Raymond W. Sears, Jr., Donald Weinstein, Melvin A. Lewis, Frederick D. Chichester, Alan H. Stolpen

**AUGUST 2000**

## August 2000

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#### IEEE NJ SECTION HOME PAGE

<http://www-ec.njit.edu/~ieeenj/>

#### IEEE NJ SECTION NEWSLETTER HOME PAGE

<http://www-ec.njit.edu/~ieeenj/NEWSLETTER.html>

#### REPORT ADDRESS CHANGES TO:

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*The North Jersey Section Executive Committee usually meets the first Wednesday (except holidays and December) of each month at 7:00 PM. Meetings are open to all members. For information on meeting agenda contact Secretary Wayne Owens at (201) 767-3400, ext. 226, [wowens@crestron.com](mailto:wowens@crestron.com).*

## Congratulations to the New Senior Members

#### November 1999

Basu, Mitra  
Chivakula, Bhanu M.  
Glennon, Matthew T.  
Krishnan, K.R.  
Misra, Durgamadhab

#### December 1999

Fang, Yuguang  
Wadsack, Ronald L.

#### January 2000

Ifasi, Debora

#### February 2000

Haessig, David A.  
Schmidt, Barnet M.

#### March 2000

Aoki, Teruaki  
Berkley, David A.  
Eldada, Louay A.  
Gmachl, Claire  
Sherman, Matthew J.  
Simon, J.D.

#### May 2000

Sadjadpour, Hamid R.  
Scholten, Frank  
Yao, Yuan

Get information and the application to advance to Senior Member grade. Send your name and mailing address to: Don Weinstein, Kulite Semiconductor, One Willow Tree Road, Leonia, NJ 07605-2239, (201) 461-0900 Ext 234, mornings, FAX (201) 461-0990, email: [don@kulite.com](mailto:don@kulite.com).

## IEEE Vehicular Technology Conference

The IEEE Vehicular Technology Society will hold its Fall 2001 Conference on October 6-11, 2001 in Atlantic City. It is one of the major international mobile communications conferences in the world and will be hosted by the North Jersey chapter. Information about the conference is available at [www.fallvtc2001.org](http://www.fallvtc2001.org).

Companies that are interested in sponsorship should contact Steve Wilkowski at [swilkowski@lucent.com](mailto:swilkowski@lucent.com).

## NJ EDS, C&S, and MTT/AP Ch.: Direct and Inverse Scattering from Inhomogeneous Impedance Boundaries

The IEEE NJ Section Electron Devices, Circuits and Systems, and MTT/S/AP-S Chapters along with NJIT will host a talk August 10, 2000 on "Direct and Inverse Scattering from Inhomogeneous Impedance Boundaries." The speaker will be Dr. Ibrahim Akduman.

#### About the Talk

Determination of the boundary conditions of a surface from remote field measurements is an important and interesting topic in the inverse scattering theory. We address here a problem for the reconstruction of the inhomogeneous surface impedance of a boundary. Solutions for the plane as well as cylindrically curved boundaries are investigated. The surface impedance is recovered from the boundary condition itself, which requires knowledge of the field distribution and its derivative on the surface. The measured data is analytically continued to the boundary to obtain the required field expressions.

The direct scattering problems related to the inhomogeneous impedance surfaces will also be addressed. In the open literature the solutions are given for the surfaces having boundary conditions with constant coefficients. Here, we give a method for the conditions with coefficients which are functions of points of the surface. The methods for the plane and curved geometry are given.

#### About the Speaker

Dr. Ibrahim Akduman received his PhD in 1990 at Istanbul Technical University. He worked as a visiting professor at Polytechnic University, NY. He also spent a year at King's College, London, England. He is currently the Dean of the Electrical and Electronics Engineering Faculty of Istanbul Technical University. His research interest is in the area of direct and inverse scattering problems in electromagnetics. He is also working on the super-resolution in the con-focal scanning laser microscopy.

**Time:** 7:00 PM, Thursday, August 10, 2000. Free buffet will be starting at 6:00 PM.

**Place:** NJIT, Room 202, ECE Building, Newark, NJ. Directions are available at [www.njit.edu](http://www.njit.edu).

**Information:** Dr. Richard Snyder (973) 492-1207 (RS Microwave), Dr. Durga Misra or Dr Edip Niver (973) 596-3542 (NJIT).

# North Jersey Section Activities

## August 2000

**July 30-Aug. 2** – “International Conference On Multimedia & Expo (ICME) 2000” – 8:30 AM, New York Hilton, New York, NY. For more details see [www.research.ibm.com/icme2000](http://www.research.ibm.com/icme2000).

**Aug. 2**–“NJ Section Executive Committee Meeting” – 7:00 PM, ITT, 100 Kingsland Road, Clifton, NJ. Wayne Owens at (201) 767-3400 ext. 226 or [wowens@crestron.com](mailto:wowens@crestron.com).

**Aug. 10**–“Direct and Inverse Scattering from Inhomogeneous Impedance Boundaries” – EDS/C&S and MTT/AP Chapters, 7:00 PM, NJIT, Room 202, ECE Building, Newark, NJ. Dr. Richard Snyder (973) 492-1207 (RS Microwave), Dr. Durga Misra or Dr Edip Niver (973) 596-3542 (NJIT).

### Upcoming Meetings

**Sept. 6**–“NJ Section Executive Committee Meeting” – 7:00 PM, ITT, 100 Kingsland Road, Clifton, NJ. Wayne Owens at (201) 767-3400 ext. 226 or [wowens@crestron.com](mailto:wowens@crestron.com).

**Sept. 6-8** – “IEEE Sixth International Symposium on Spread Spectrum Techniques & Applications” – Sheraton Tara, Parsippany, NJ. See <http://www.ccspr.njit.edu/isssta.html> for details.

**Sept. 7**–“2000 MTT/AP Symposium and Mini-Show” – MTT-S/AP-S Chapter, 10:00AM - 7:15PM, Hanover Marriott, Whippany, NJ. Kirit Dixit (201) 445-2981 (RF Electronics) or Willie Schmidt (973) 492-0371.

**Sept. 13**–“Optoelectronic & Optical Interconnect” - NJ EDS/C&S Chapters, exact time and location will be published in the August Newsletter.

**Sept. 14**–“XML Secrets for Managers and Engineers” - NJ Computer Chapter, 7:00 PM, Dialogic Inc, 1515 Route 10 East, Parsippany, NJ. Howard Leach, (732) 594-2911, or [h.leach@ieee.org](mailto:h.leach@ieee.org).

**Sept. 21**–“Static Transfer Switch Technology” - NJ IAS/PES Chapters, 7:00 PM, Dialogic Inc, 1515 Route 10 East, Parsippany, NJ. Ken Oexle 973-386-1156.

**Sept. 22**–“Electromagnetic Compatibility Seminar: Principles and Applications” - NJ IAS/PES Chapters, 9:00 AM to 4:00 PM, Smiths Industries, 7-9 Vreeland Road, Florham Park, NJ. R. Vittal Rebbapragada, PE, (609) 720-3209 or [r.rebbapragada@ieee.org](mailto:r.rebbapragada@ieee.org).

**Sept. 28**–“Bergen Generating Station Tour” - NJ Consultants’ Network, 5:30 PM, Bergen Generating Station, Ridgefield Park, NJ. Robert Walker (973) 728-0344 or [www.TechnologyOnTap.org](http://www.TechnologyOnTap.org).

**Oct. 19**–“E-Commerce Driving Business Models and Supply Chain Management ” - NJ Computer and IAS , 7:00 PM, Dialogic Inc, 1515 Route 10 East, Parsippany, NJ. Ken Oexle 973-386-1156.

**Members and Non-Members Welcome**

# PLEASE POST

NJ PES/IAS:

## Applications of High Speed Transfer Switches

The IEEE North Jersey Chapters of IAS/PES will host a discussion on "High Speed Transfer Switches" on Thursday September 21<sup>st</sup>. Ronald W. Quade, PE, Anthony J. Pinkey and William G. Edwards will lead this discussion.

### About the Talk

The need for reliable power to critical loads has been widely publicized in recent years.

With improvements in solid-state power electronics, we've seen the expanded application of the digital static transfer switch (DSTS) in local applications. The DSTS is a high efficiency, open transition switch that transfers critical loads between two (or more) AC power sources. The switch monitors all sources and based upon user defined parameters performs a sub-cycle transfer from the preferred source to one of the alternate sources. Since the switching is an open transition (break-before-make) transfer, the need for sophisticated and expensive paralleling relaying is circumvented. The switching action occurs in a fraction of a cycle – too fast to be noticed by the critical loads. Since the DSTS has no moving parts, its reliability is high and its maintenance costs low.

For facility wide applications, medium voltage high-speed transfer switches have been applied. These switches consist of vacuum reclosers with the same high-speed sensing controls and logic as the DSTS. Where loads are too numerous and dispersed for the DSTS, the medium voltage transfer switch applied at the primary voltage has proven to be an excellent alternative.

This discussion will touch on several possible applications of high-speed transfer switches. In some situations, independent utility sources are available - the opportunities and benefits of facility wide protection in these situations will be discussed. Applications in hospitals, data centers, manufacturing sites, etc. will also be discussed and a few cases studies will be presented.

### About the Speakers

Mr. Quade received his Masters Degree in Power Engineering from NJIT. He has held several positions with GPU Energy and now works as a Sales Engineer with Cutler-Hammer Engineering Services.

Mr. Edwards received his Bachelors Degree in Electrical Engineering from the University of Missouri. Prior to his present position as Eastern Regional Sales Manager with Joslyn High Voltage. Mr. Edwards worked for eight (8) years

with S&C Electric Company both domestically as well as in Southeast Asia.

Mr. Pinkey received his Bachelors of Electrical & Electronics Engineering from Manhattan College where he minored in Nuclear Physics. He has been with Cyberex as the Eastern Regional Sales Manager for 3 years prior to which he spent 9 years for Powerware/Exide as Product Manager – Large Systems.

**Time:** 7:00PM, Thursday, September 21, 2000.

**Location:** Dialogic Inc., 1515 Route 10 (East bound from Route 202), Parsippany, NJ. Please park and enter from the front of building.

**Information:** Ken Oexle 973-386-1156.

### NJ Consultants' Network:

## Bergen Generating Station Tour

On Thursday, September 28<sup>th</sup>, the IEEE Consultants Network of Northern NJ have planned a tour of the PSE&G owned Bergen Generating Station in Ridgefield Park, NJ.

### About the Tour

The plant was modernized in 1994 with the addition of four Siemens manufactured gas turbines with heat recovery steam generators which provide high pressure steam to an existing steam turbine/generator. The gas turbine electronic control system is a Siemens "Teleperm/Simadyne" system. The plant has a Honeywell TDC 3000 computer control system for start-up, monitoring and metering of the plant output. The plant went commercial in June 1995.

### About the Consultants' Network

The IEEE Consultants' Network of Northern NJ was founded in 1992 to encourage and promote the use of independent technical consultants by business and industry.

### All Welcome!

You do not have to be a member of the IEEE or of the Consultants' Network to attend. Networking after the meeting is encouraged.

**Time:** 5:30PM, Thursday, September 28, 2000. The tour will last approximately 2 hours.

**Place:** Bergen Generating Station, Ridgefield Park, NJ.

**Information:** For travel directions or further information please consult the CNNNJ web site at [www.TechnologyOnTap.org](http://www.TechnologyOnTap.org) or call Robert Walker at 973-728-0344.

## NJ Computer and IAS Chapters: E-Commerce Driving Business Models and Supply Chain Management

On October 19, 2000, the Computer and Industrial Application Chapters will sponsor a program on the impact E-Commerce is creating in developing new business models for electronics manufacturing and supply chain management.

### About the Talk

The Big 3 automakers are taking equity stakes in E-Commerce companies. SAP has stumbled without E-Commerce modules. Steel is sold in bulk to heavy Industries on the Internet.

What is happening to the present, time tested ways of purchasing, manufacturing, and servicing customers? What does the future hold for manufacturing and supply chain management on the Internet? How are Internet-enabled collaborative environments changing the relationships between various departments, suppliers and customers? How will this impact time to market, quality, and costs? How will this affect manufacturing outsourcing?

The session will show how E-Commerce is changing business models for electronics manufacturing and supply chain management and how it will change your industry, company, and job!

### About the Speaker

Michael Chester is Vice President of interEMS.com, a B2B E-Commerce company. Mr. Chester has helped companies ranging from startups to Fortune 500 companies develop strategic plans, business development, E-Commerce and outsourcing strategies.

**Time:** 7:00PM, Thursday, October 19, 2000.

**Location:** Dialogic Inc., 1515 Route 10 (East bound from Route 202), Parsippany, NJ. Please park and enter from the front of building.

**Information:** Ken Oexle 973-386-1156.

## From the President: Who needs a UCITA?

By Merrill W. Buckley, Jr.

I'll admit, it sounds boring: the Uniform Computer Information Transaction Act. But UCITA (rhymes with, 'you don't need a') will turn you from someone who owns information technology, to someone who is allowed - for a time, and at a price, as long as you don't make it work better -- to use other people's property. That's a bad idea, which is why the IEEE-USA is fighting it on your behalf. And we will need your help to win.

In a way, UCITA is an attempt by software manufacturers to modernize the different state laws that govern commerce, which are often outdated when it comes to the shifting paradigms of the New Economy. That needs to be done, and as the U.S. members of the world's largest technical society, we're ready to help.

But the actual "one size fits all" law that UCITA backers want to pass amounts to a free pass for the software industry. If you work with computers, especially if you like to tweak and tinker with technology, you should oppose UCITA. Most of all if you depend on software for doing business you should join us in presenting a comprehensive, unified opposition to this terrible, Trojan Horse legislation.

Consider the following true life example. A contractor buys software to prepare the complex bids on which his business depends. All he has to do is fill out pre-programmed forms with all the variables, and it will tell him what to bid, to meet his needs with the all-important competitive edge to get the contract. So he carefully works out what materials he needs, staffing, and budget projections - and he confidently offers what he is certain will be the winning bid.

But it's not. A competitor bid less. Astonished, he double-checks his losing bid - by hand this time, to learn that the software wasn't so reliable after all. It added when it should have subtracted - costing him the contract, maybe killing his company.

In most states, he could sue the software maker for a defective product. But by buying the software with its liability-waiving license written in dense small print further obscured by shrinkwrapping, he had given up the right to sue - in states that have passed UCITA. (Has yours?)

Not only will this be a kind of "get out of jail free" card, handed over to the software manufacturers every time we buy or use software, or anything which has software in it - which soon mean just about everything. But it will also have a

chilling effect on innovation and competition - to say nothing of accountability - for software makers and users alike. If you tweak your devices to work better, you may have violated your license - not to speak of professionals who reverse-engineer for improvements or compatibility. And if you violate your license, UCITA authorizes the software maker to disable your equipment.

Because UCITA is a battle to be fought, state by state - not the U.S. Congress - it is a example of the old adage: "All politics is local." Go to <http://www.ieeeusa.org/grassroots/ucita> to find out if your state legislature has taken up UCITA, and what you can do to fight it.

Ask questions, and start looking on your IEEE-USA Website for the answers.

### *NJ Computer Chapter:* **XML Secrets for Managers and Engineers**

On September 14<sup>th</sup>, 2000, the IEEE North Jersey Section Computer Chapter will host a presentation on "XML Secrets for Managers and Engineers" by Eli Rohn.

#### **About the Talk**

The talk will cover, as a minimum, the following subjects:

- What is XML
- Hype and Reality Check
- Benefits and Risks
- Existing and Emerging Tools
- Live Demonstrations
- Research Problems Relating to XML

#### **About the Speaker**

Eli Rohn is the Managing Member of Rohn Consulting LLC. He has a Masters degree in Management of Information Systems from NJIT, has published two technical books and over 30 professional articles. He renders consulting services to the Fortune 500 companies on top of running his business. Eli, who started as a programmer, has over 15 years of experience with Mainframes, PCs, Networks, and has been involved with Internet technology for over five years.

#### **All Welcome!**

You do not have to be a member of the IEEE to attend. Bring your friends.

**Time:** 7:00 PM, Thursday, September 14, 2000.

**Place:** Dialogic, Inc., 1515 Route 10 (East bound from Route 202), Parsippany, NJ.

**Information:** Howard Leach, (732) 594-2911, or [h.leach@ieee.org](mailto:h.leach@ieee.org).

## **The VT Conference Committee Wants You!! Looking for Volunteers, Sponsors, Exhibitors**

The IEEE North Jersey Section is hosting the Fall 2001 Vehicular Technology Conference in Atlantic City, NJ from October 6-11, 2001. And now's your chance to get involved.

Have you ever wondered how a conference comes together? How speakers, tutorials, meals, and many other activities are smoothly integrated? How to produce a powerful technical program of international caliber? How to advertise your company's name on the coffee cups during the lunches and breaks?

Then this is the deal for you. The conference committee is issuing an open call for volunteers to help man its sub-committees. Currently the following have some openings: local arrangements, banquet, publicity, publications, registration, special/social events, transportation, and many others.

But it doesn't stop there. There are special discounts for student volunteers and sponsoring companies. What better way for your organization to get its name out to hundreds of people from worldwide in the mobile communications arena than by becoming Platinum, Gold, or Silver sponsors? You can even tailor your sponsorship to meet your advertising needs. This includes getting tables or floor space to exhibit YOUR products and services to those people with the purchasing power or an all electronic advertisement on the website.

Even students can get involved. There is a significant student admissions discount and does not require any society affiliations. We are also looking for students to man the registration desk and take on other activities. Universities are also welcome to become sponsors.

How can you find out more and get involved? Contact conference chair Art Greenberg at [a.h.greenberg@ieee.org](mailto:a.h.greenberg@ieee.org) or (973) 492-1207, and Industry Liaison/Exhibits chair Stephen Wilkowski at [swilkowski@lucent.com](mailto:swilkowski@lucent.com) or (973) 386-6487. Check out the website at <http://www.fallvtc2001.com/index.htm>.



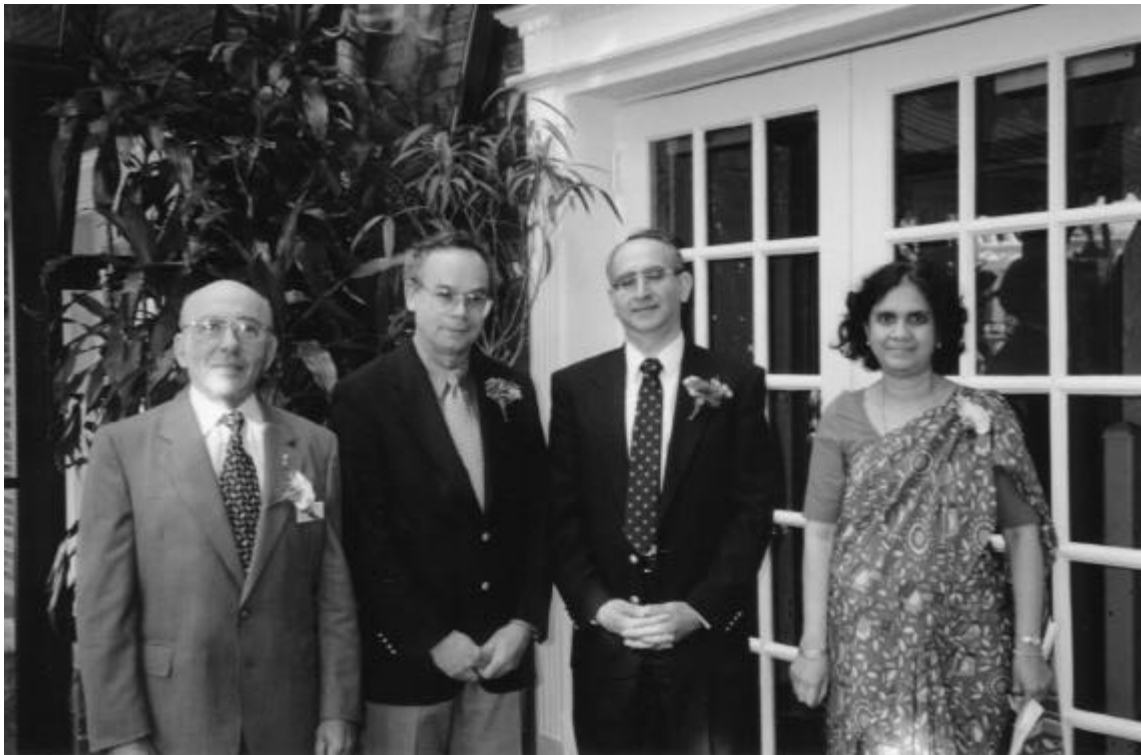
5/7/00

**Irv Engelson presents Region 1 Award to Art Greenberg**



5/7/00

**Irv Engelson presents Region 1 Award to Mel Lewis**



5/7/00

**Irv Engelson (L), Region 1 Director, with New Fellows Avi Silberschatz and Jamal Golestani. Accompanying them is Agrawal Prathima, Chair – IEEE Fellows Committee**

## **PACE NEWS - by Richard F. Tax** **New Season for PACE**

Although professional issues for members of the Engineering Community continue throughout the year IEEE seems to function most around the academic school year. Too bad, but we have to live with that. So, we will make an extra effort to enhance our PACE activities beginning in September.

Any thoughts, ideas, or suggestions you may have about meetings can be emailed to me at [rtax@bellatlantic.net](mailto:rtax@bellatlantic.net).

We could also use your help getting meeting sites. Locations near the Garden State Parkway and Route 80 would be really good. Copying your interests to our Section Chairman, Alan Stolpen, at [a.stolpen@ieee.org](mailto:a.stolpen@ieee.org) would also be helpful.

This month we have an interesting Satire, by John M. Miano, about fabricated manpower shortage numbers. Thought I would pass this on to you.

WEB SITES OF INTEREST can be found at:

[www.osOpinion.com](http://www.osOpinion.com)  
[www.zazona.com](http://www.zazona.com)  
[www.osopinion.com/Opinions/RichardTax/RichardTax1.html](http://www.osopinion.com/Opinions/RichardTax/RichardTax1.html)  
[www.NumbersUSA.com](http://www.NumbersUSA.com)  
[www.programmersguild.org](http://www.programmersguild.org)  
[www.fairus.org](http://www.fairus.org)  
[www.aea.org](http://www.aea.org)  
[www.americanworker.org](http://www.americanworker.org)

## **Want to be a Speaker for IEEE Student Events ??**

Volunteers are requested to speak to North Jersey IEEE student member groups on campus. We need folks that are willing to speak on just about any topic relating to engineering. Communicating well, or other "soft skills" are especially sought, as well as any technical topics. Volunteers must be willing to go to student meetings, usually on campus.

Additionally we are also preparing to hold our annual Professional Skills Development Workshop (PSDW) for the Fall of 2000. This event takes place in November and is devoted to professional instructional seminars to help prepare engineering students for the real world.

If interested or would like to learn more, feel free to contact NNJ Student Activities Chair Amit Patel at [a.j.patel@ieee.org](mailto:a.j.patel@ieee.org) or 973-284-2708.

# **PACE NEWS: SATIRE**

## **Finding the Size of the Programmer Shortage for Your Article**

### **A Guide for Writers and Editors**

By John M. Main

So, you are writing an article or editorial about the huge shortage of workers in the Information Technology field. Saying "There is a shortage of programmers in the U.S." does not make a hard hitting piece. Obviously, the first thing you will need is a number stating the size of this shortage, one that will support the points you are trying to make in your article.

So how do you get a number to quantify the Information Technology worker shortage?

You could do what industry analysts and lobbyists do and simply make a number up. While this is an easy, widely used and effective method, the down side is that it could leave you and your publication open to attacks against its credibility.

Your best bet is to pick a figure from among the wide variety of shortage numbers already available. By using someone else's number, you can always point the finger at them when questioned about where it came from. You didn't say that was the actual size of the shortage. You simply reported what someone else said the size of the shortage was. With the wide range of shortage numbers to pick from, you can make any point you want.

Here is just a sample of the huge selection of IT worker shortage numbers you can choose from:

- *ComputerWorld*, February 26, 1997. The ITAA claims 191,000 IT jobs are unfilled.
- *ComputerWorld*, June 30, 1997. Dr. Howard Rubin claims there are 200,000 unfilled IS jobs.
- *ComputerWorld*, July 9, 1997. Jim Barksdale of Technet claims there is a shortage of 300,00 information systems professionals.
- *ComputerWorld*, December 1, 1997. Dr. Howard Rubin says that IS job openings will reach 350,000 by the end of 1998.
- *ComputerWorld*, January 9, 1998. The National Software Alliance estimates there will be 137,000 software jobs created annually.
- *ComputerWorld*, February 2, 1998. The ITAA claims 346,000 computer-related jobs will go unfilled.
- *San Francisco Examiner*, July 11, 1998. The Meta group says there is a shortage of 400,000 computer programmers and electrical engineers.
- Testimony of David Dreier, August 4, 1998. Congressman Dreier says 95,000 computer jobs will be created each year.
- *Dayton Daily News*, July 11, 1999. NCR says there 400,000 IT job vacancies.
- *Tech Week*, Jun 28, 1999. Meta Group estimates 400,000 IT vacancies by the end of 1999
- *EE Times*, August 6, 1999. Sponsors of H-1B legislation say there will be 300,000 IT jobs
- *New York Times*, November 18, 1999. ITAA claims 350,000 openings for computer professionals.
- *Boston Globe*, March 10, 2000. Industry groups say there as many as 300,000 unfilled IT jobs.
- AP, April 9, 2000. ITAA claims 843,328 (+/- 3%) IT jobs may be difficult to fill.
- *Chicago Tribune*, May 28, 2000. Industry estimates that some 300,000 to 800,000 IT jobs go unfilled.
- Michigan Economic Development Corporation Press Release Supporting H-1B, May 25, 2000. According to the U.S. Dept. of Labor, the U.S. economy will produce 130,000 IT jobs each year.

Before you pick a shortage number for your article, you need to consider your audience carefully. For the general public and members of Congress, the ITAA's 843,328 number is highly effective. The huge size has impact, suggesting a crisis exists. With such a large number, if ITAA had said the shortage was 850,000, most people would think they were simply making it up. However, with the precision of 843,328 and a margin of error of +/-3% thrown in, the general public (and especially politicians) will think that some serious research was involved in deriving it.

The ITAA's number will not work if you have a technical audience. Anyone with a basic understanding of statistics will immediately spot the ITAA's number as a fraud from the overly specified precision. If your readership contains anyone who took a mathematics course in college, the using ITAA's number will blow your credibility.

Don't fret, there are plenty of other perfectly good IT worker shortage numbers to choose from.

A good general-purpose number is the Department of Labor's estimate that there will be 130,000 new IT jobs created this year. It comes from a government source and is relatively conservative compared to comparable numbers from most industry groups.

Rep. David Dreier's figure of 95,000 IT jobs created each year is a nice one too, but it tends to be at the low end.

Before using either of these two numbers, you need to decide what is the point of your article. If you are trying to justify an increase in the number of foreign programmers imported into the U.S. to 200,000 a year, you need to tread carefully with these. A questioning audience might ask why we need 200,000 foreign workers (of which 100,000 will go into IT) to fill 95-130,000 jobs, since that would mean there would be no jobs left for the 162,000 Americans graduating with degrees in computer science, engineering or mathematics.

This is not to say you cannot use the Dreier or DoL numbers to justify an increase in visas. The DoL number has been used by industry groups to justify an increase and Dreier's number was used in congressional testimony advocating an increase. While in neither case did anyone in the press catch on, the potential for the credibility of your article being undermined exists. Use caution.

A good all round number is the Meta Group's 400,000 shortage number. This number is large enough to justify an increase in foreign workers while at the same time is it not as ridiculously large as the ITAA's number. By using a number that is between the ITAA's number and about the DoL's, you can respond to criticism with numbers that are both higher and lower than the one you picked.

There is an IT worker shortage number to fit any occasion and every political agenda. No matter what point you want to make in your article, there is a phony shortage number available to back you up.

John M. Main is a member of the Programmers Guild. See their web site under PACE NEWS.



# The 20 Greatest Engineering Achievements of the 20th Century

Include 13 from IEEE technologies.

1. **Electrification** 2. Automobile 3. Airplane 4. Safe and abundant water 5. **Electronics** 6. **Radio and Television**  
7. Agricultural Mechanization 8. **Computers** 9. **Telephone** 10. **Air Conditioning and Refrigeration**  
11. Interstate Highways 12. **Space Exploration** 13. **Internet** 14. **Imaging Technologies**  
15. **Household Appliances** 16. **Health Technologies** 17. Petroleum and Gas Technologies  
18. **Laser and Fiber Optics** 19. **Nuclear Technologies** 20. High-Performance Materials



*"If anything shines as an example of how engineering has changed the world during the 20th century, it is clearly the power that we use in our homes and businesses. What I really hoped to do was shamelessly use this occasion to remind you of the breadth, and the depth, and the importance of engineering as a whole to human existence, human progress, and human happiness."*

- NEIL ARMSTRONG, Astronaut & Engineer  
National Press Club, Washington, DC, 22 February 2000

NJ PES/IAS:

## Electromagnetic Compatibility: Principles and Applications

The IEEE North Jersey Chapters of IAS/PES will host a one day Seminar on "Electromagnetic Compatibility: Principles and Applications" on Friday September 22, 2000 at Smiths Industries in Florham Park, NJ.

### About the Seminar

The seminar duration will be 9:00 AM to 4:00 PM., with breaks for lunch and coffee. The seminar will cover the following topics:

- Introduction to EMI environment
- Sources of conducted and radiated EMI
- Standards governing the EMI Design Guidelines and Test Practices
- EMI Measurements, Control Requirements, and Test Methods
- EMI Issues from Variable Speed Drive Applications
- Harmonics and its Role in EMI
- Mitigation Techniques: Shielding, Bonding and Grounding

The seminar is designed for engineers, contractors, and consultants that are involved with selection, application, and installation of micro-processor based control and protection systems, distributed control systems, power electronic devices such as variable speed drives in industrial, residential, commercial, and electric utility installation such as generating stations and substations.

This seminar will be conducted by industry recognized experts with over 25 years of experience in the area of Electro Magnetic Compatibility. The registration fee for this seminar prior to August 15th will be \$200 (non-IEEE members), \$150 (IEEE Members), and \$100 (students with valid ID). Registrations after August 15th must include an additional late fee of \$25. The seminar fee includes lunch, refreshments and handouts. Non-members joining IEEE within 30 days of the seminar will be rebated \$50 of the \$200 registration charge.

**Time:** 9:00 AM to 4:00 PM, Friday, September 22, 2000.

**Place:** Smiths Industries, 7-9 Vreeland Road, Florham Park, NJ 07932. Directions from Route 287: Take I-287 to Exit 37 (NJ 24 East - Springfield). Take NJ 24 East to Exit 2B (Columbia Turnpike) for 3.3 miles to Vreeland Road (8th set of traffic lights). Turn left on Vreeland Road. Smiths Industries will be on the right (0.7 miles).

**Information:** R. Vittal Rebbapragada, PE, (609) 720-3209 or r.rebbapragada@ ieee.org.

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*Registration: Electromagnetic Compatibility Seminar - Principles & Applications 9/22/2000*

Register via US mail to:

K. Oexle

11 Deerfield Rd

Whippany, NJ 07981

Name \_\_\_\_\_

Address \_\_\_\_\_

Phone \_\_\_\_\_ Email \_\_\_\_\_

IEEE # \_\_\_\_\_ Student @ \_\_\_\_\_ Non IEEE \_\_\_\_\_

Payment Enclosed \$ \_\_\_\_\_ Add \$25 late registration after August 15th

Make Check payable to North Jersey Section IEEE

**THE INSTITUTE OF ELECTRICAL AND ELECTRONIC ENGINEERS, INC.**



**IEEE**  
**NORTH JERSEY SECTION**  
MTT-Society and AP-Society Joint Chapter

**PRESENT**

**15<sup>TH</sup> ANNUAL SYMPOSIUM AND MINI-SHOW**

**FOCUS: Microwave and Wireless Communication in the New Millennium.**

**THURSDAY, SEPTEMBER 7, 2000**  
**HANOVER MARRIOTT, WHIPPANY, NJ**

**SCHEDULE OF EVENTS**

**10:00 AM TO 6:30 PM - MINI SHOW FEATURING LATEST PRODUCTS**

**9:15 AM TO 6:00 PM - TECHNICAL SESSIONS**

**10:00 AM TO 12:00 PM - LECTURES FEATURING SPEAKERS FROM LEADING COMPANIES SUCH AS LUCENT TECHNOLOGIES, MOTOROLA, AGILENT, AT&T, FUJITSU ETC. ON POWER DEVICES, SMART ANTENNA, BLUE TOOTH, 3G TECHNOLOGY, ETC.**

Details of the schedule, speakers and topics will be published in the August and September issues of the IEEE NEWSLETTER and posted on the IEEE North Jersey Section Homepage at

<http://www-ec.njit.edu/~ieeenj/NEWSLETTER.html>

FOR FURTHER INFORMATION CONTACT KIRIT DIXIT (201-445-2981) OR WILLIE SCHMIDT (973-492-0371). THERE IS NO CHARGE TO ATTEND THE SYMPOSIUM OR SHOW.

# International Conference On Multimedia & Expo (ICME) 2000

July 30 - August 2, 2000  
New York Hilton  
[www.research.ibm.com/icme2000](http://www.research.ibm.com/icme2000)

International Conference On Multimedia & Expo 2000 is the first IEEE multimedia conference to take place in joint collaboration with four IEEE societies. The same four IEEE societies that have recently launched the IEEE Transactions on Multimedia, namely the Circuits and Systems Society, the Computer Society, the Signal Processing Society, and the Communications Society have again come together in making this one-of-a-kind conference a reality. The goal is to unify all IEEE as well as non-IEEE multimedia related activities under the common umbrella of ICME 2000 - the millennium multimedia meeting. It is expected that this will become a yearly event as the flagship multimedia conference of the IEEE. New York City (the Big Apple) is uniquely suited for this first-time event in view of its large concentration of high tech industries, first-rate academic institutions and numerous small multimedia companies. The intent is to blend the framework of traditional IEEE conference into an Expo by providing the industry an opportunity to showcase products.

There will be a set of pre-conference tutorials on various aspects of recent advances on multimedia technologies by experts on the field. While onsite registration for the tutorials may be accepted, we strongly encourage pre-registration to guarantee availability of tutorial material (notes to be handed out).

## TUTORIALS

Tutorials are scheduled on Sunday July 30 from 8:30AM-12:00 noon, and 1:30PM-5:00PM. For more details please see the conference website

[www.research.ibm.com/icme2000](http://www.research.ibm.com/icme2000)

and click the "tutorials" link. The following tutorials are scheduled:

- 1.T1 - Principles of Multimedia Database Systems  
V. Subrahmanian, University of Maryland
- 2.T2A - Internet Multimedia Protocols  
H. Schulzrinne, Columbia University
- 3.T2B - Multimedia Processors: VLSI Architectures and Programming  
P. Pirsch, University of Hannover
- 4.T3A - The MPEG-4 Multimedia Coding Standard  
A. Puri, AT&T Laboratories, A. M. Tekalp, University of Rochester, A. Murat Tekalp, Ph.D.
- 5.T3B - The MPEG-7 Multimedia Content Description Standard  
J. R. Smith, IBM T. J. Watson Research Center, A. Puri, AT&T Laboratories, A. M. Tekalp, University of Rochester
- 6.T4A - Emotion and Paralinguistic Communication  
J. Cohn, University of Pittsburgh, F. Quek, Wright State University, S. Fels, University of British Columbia, R. Nakatsu, ATR Media Integration & Communications Research Laboratories
- 7.T4B - Multi-Modal Interfaces for the Physically Able and Disabled  
J. Ohya, ATR Media Integration & Communications Research Laboratories, S. Morishima, Seikei University, R. Reilly, University College Dublin, and S. K. Semwal, University of Colorado