



Worcester County IEEE

Newsletter

May

1995

Worcester Section PACE

1994 IEEE PACE Conference Highlights

Stan Tanenholtz

Wednesday, April 26, 1995 at 7 PM, New England Electric, Westboro

A video presentation from the 1994 PACE conference including "Information Networking in the Nineties", "Professional Skill Development", "The Fate of U.S. Engineers" and "Marketing Thyself".

Worcester Section

Visual Basic For Everyone

John Barrie, Business & Technology Development

Monday, May 8, 1995 at 7:00 PM, WPI, Worcester

Introduction to VB fundamentals, vocabulary and controls (VBXs), and demonstration of how applications are developed.

Computer Society

Modeling The Impact Of Quality Initiatives On The Software Product Life Cycle

R. Aranda, T. Fiddaman, R. Oliva

Wednesday, May 17, 1995 at 6:00 PM, Quantum, Shrewsbury

The talk focuses on a new perspective of software development dynamics generated by the modeling work, and some thoughts on the direction of systems modeling for software process improvement.

Worcester Section - PACE Internet Subsection

Windows NT: Your Internet On Ramp

Rob Bennett, Microsoft

Thursday, May 18, 1995 at 7:00 PM, DEC (SHR3), Shrewsbury

This presentation will demonstrate Windows NT's versatility as your on ramp to the Information Highway.

Worcester County Section IEEE

Annual Meeting Awards Banquet and Election

Wednesday, May 24, 1995 at 6:30 PM, Cheng Du Chinese Resturant, Westboro

We will be giving the recent recipients of Region 1 Awards their plaques. Afterwards, we will be having our Annual Election of Officers.

Worcester Section - PACE Internet Subsection

Apple's Workgroup Server as a WWW Site

Tom Barrieau, Apple Computer

Thursday, June 15, 1995 at 7:00 PM, DEC (SHR3), Shrewsbury

A demonstration of Apple's new web server and overview of Apple's Internet strategy.

THE PACE PAGE

Engineers and the Global Economy (Continued from February newsletter)

The following is the third part of the speech given by Edith Holleman, Counsel of the Science, Space and Technology Committee of the U.S. House of Representatives at the September 3, 1994 PACE conference.

You may think that competition for industrial jobs has nothing to do with your highly skilled jobs. To a great extent, professional salaries are based on blue-collar salaries. In a world economy, if blue-collar salaries are low, the salaries of professionals who compete worldwide will be most affected. Computer programmers, scientists and engineers are on the front line of the global, white-collar, free-market labor battleground.

Let's look at computer programming for a minute. According to the August issue of CPU, IBM, Motorola and Texas Instruments have production and research facilities in Bangalore, India; Oracle will soon put its fifth — and largest — R&D center outside of the U.S. in Bangalore. Apple is setting up a development and education project in the Ukraine which has 500,000 computer programmers. Apple will train them and assign programming tasks at one-quarter of the price of a U.S. programmer. Their inventions — like ours — will be sold worldwide. This has to impact the job prospects of the average programmer.

Engineering is described as the discovery, refinement and application of technology. It shapes all aspects of our society. It is not surprising that one of the first professions every country promotes is engineering. A developing country is a country that needs engineers to build its infrastructure and its industries. Right now, there are a lot of good engineers in the world and not enough work for them. This fact has changed the entire engineering employment equation. IEEE's Spectrum a year ago in its "Jobs at Risk" issue found the only place in the world there was a shortage of engineers was in Hong Kong.

It's true that there are some new, high-tech jobs for engineers, but they are not reserved for you in the First World. As international corporations move their facilities to cheaper locations, jobs in fields such as product design, process engineering and software development are moving with them. You were used to competing with your counterparts in Germany, France and Japan. Now you must compete with the best that India, Mexico, Korea, China and Brazil have to offer. They cost a lot less than you do, and

often they are just as good. India has one-third of the world's Ph.D. scientists and engineers. Other countries have thousands more.

The pell-mell rush of the world's nations into free-trade agreements, with their accompanying international joint ventures further weakens the connections of any corporation to the well-being of a specific country's economy. The bottom line controls everything. Our research efforts are also being internationalized, with the result that the skilled jobs created are shared with other countries. The end of the Cold War has only speeded up the process. There are no longer two competing, somewhat duplicative systems. We all compete for the same jobs.

Additionally, although very high-tech research continues to be done successfully in the United States, it cannot be counted on to spin off into domestic manufacturing facilities providing employment for many engineers and skilled workers. Let me refer to the Sematech experience. After a \$1 billion federal investment which did help recapture leadership for U.S. in the semiconductor equipment manufacturing field, the General Accounting Office warned that a net job increase was not evident because of what it termed "increasingly complex international business relationships". That's a delicate way of saying that semiconductors continue to be manufactured in cheap labor markets because that is where the profit is.

Downsizing of U.S. corporations by eliminating large numbers of middle managers — one economist calls it "wringing out" excess employment in the American economy — also impacts you. It holds down payrolls — and wages. More senior engineers frequently move into management and free up jobs for younger people. Where are these people going to go now — back to the drawing table — or the computer? Into contract engineering?

And I don't need to discuss with you the impact of defense downsizing on engineers. From 1976-86, the decade of defense buildup, there was an 100% expansion in the number of scientists and 90% for R&D engineers, a greater expansion than in any other field. Defense engineers also got top salaries compared to other engineers. Defense buildup accounted for 17% of all new jobs in the U.S. during this time. This is a thing of the past. All of these factors add up to a very tight job market with no salary growth expected.

There has been buying power loss for engineers for several years, and there will be more. This year, for the first time, graduating nurses received higher wages than engineers.

What are our policy makers doing? Very little. Many are in a state of denial, or they are trying to preserve existing jobs through defense technology conversion programs. As you may know, there is also growing resistance in Congress to further defense cuts because it means more skilled job cuts. But four to five years ago, there were plenty of signs that a crisis was coming, which were ignored by the policy makers and, frankly, I don't have much hope for them.

Introduction To The "C" Programming Language Course Announcement

Jim Jensen

The Worcester County Section is sponsoring an 25 hour "Introduction to the 'C' Programming Language" mini-course. To date, only three people have expressed an interest to the announcement in the last newsletter. We would like to have the course as we have already purchased the text books. The course will be given at Digital Equipment Corporation Hudson Facility Education and Training Center, 3 miles from the intersection of Route-495 and Route-290.

The course will include lectures and hands-on programming on the VAX/VMS workstations in the Training Center. Books and other material for the course will be given out on the first night. The C we are teaching is "ANSI Standard C", and the programs that we will write will run on any standard system, including PC's. We are teaching on VAX/VMS systems because they are convenient and familiar for the instructor and the use of them are donated/traded. You are certainly welcome to bring and use your own systems, but we cannot offer a course discount since the time on the VMS systems is being donated/traded. Material to be covered will include:

- Statements (data types, variables, operators, string, arrays,...)
- Control structures (if, else, else if, switch-case-default)
- Looping (for, while, do-while)
- Functions - system supplied, user defined
- Disk I/O
- Structures
- Pointers

A certificate will be given to those who complete the course.

The number of workstations is 19 so students wanting to use the VAX/VMS systems is limited to 19 (not applicable if you supply your own PC), though if interest warrants, we may be able to schedule additional courses).

The fee for the course is 300 dollars for IEEE members, 350 dollars for non-members. We have looked into PACE funding and it looks like we will have funding to reduce the cost of the course to the verifiably unemployment attendees and possibly some for current students.

If you are interested in taking this course, please send a letter to Jim Jensen (82 Edgewood Road; Shrewsbury, MA 01545) to get a registration packet. Within the letter, please indicate your preferences (indicate all that are possible, and those that will prevent you from attending, as we will try to accommodate). Also indicate any other information that may be pertinent (so far, meeting weekly on Tuesdays starting week of 5/16 is the most popular):

Start the course the week of:

(5/16) / (5/23) / (5/28) / (other)

Hold classes in the evenings on:

(Mon) / (Tue) / (Wed) / (Thu)

Have classes be: (2-hours/night) / (3-hours/night)

Have classes held: (weekly) / (alternate weeks)

Have mid course vacation time:

(include) / (don't include)

Worcester County Section IEEE Annual Meeting and Awards Banquet

The Worcester County Section Annual Meeting is scheduled for Wednesday, May 24, 1995 at the Cheng Du Chinese Resturant on Route 9 (westbound side) in Westboro, Mass. We will meet for cocktails at 6:30 PM and be seated in the banquet room at 7:00 PM. We will be ordering off the menu.

For the Awards Banquet, we will be giving the recent recipients of Region 1 Awards their plaques.

Afterwards, we will be having our Annual Election of Officers. The slate of Officers for Worcester County Section IEEE for the 1995-1996 term of office are:

Section Chair:	Larry Nelson
Section Vice-Chair:	Shashi Mehra
Secretary/Treasurer:	Jim Jensen
Newsletter Editor:	Bob Hassinger
PACE Chair:	Stanley Tanenholtz
Economic Development Chair:	Al Reinhart
Program Chair:	Bilal Mehmood
Computer Society Chair:	Rec Perron/Jim Perry
Computer Society Vice-Chair:	Rizwan Qureshi

If you would like to run or nominate someone for an office, nominations are accepted from the floor at this Annual Meeting. Alternately, contact our secretary/treasurer who will ensure that you will be considered for the ballot: Jim Jensen; Secretary/Treasurer Worcester County Section IEEE; 82 Edgewood Road; Shrewsbury, MA 01545.

Visual Basic For Everyone

John Barrie, Business & Technology Development

Visual Basics' visual application development environment enables anyone with a basic understanding of Windows and programming to create applications. John Barrie, president of Business & Technology Development, Inc. will introduce VB fundamentals, vocabulary and controls (VBXs), and demonstrate how applications are developed. He will also share his insights with us on where the industry is headed.

Meeting is at 7:00 in Kennicutt Hall, Salisbury Labs, Worcester Polytechnic Institute, Worcester, MA. For more information call Al Reinhart, DisCom Systems at 508/869-6417.

Modeling The Impact Of Quality Initiatives On The Software Product Life Cycle

R. Aranda, T. Fiddaman, R. Oliva

A System Dynamics model for exploring the impact of Formal Inspection and Quality Function Deployment (QFD) on the software development and adoption process is described, including measures of performance used and selected causal structures from the model. Work on the model began as project to assist a major computer vendor understand the competitive implications of TQM implementation over the life cycle of commercial software products. The talk focuses on a new perspective of software development dynamics generated by the modeling work, and some thoughts on the direction of systems modeling for software process improvement.

The speakers undertook the first pioneering work in modeling the impact of quality initiatives on software development processes and their relation to product requirements evolution. This work also one of the earliest efforts in the joint use of contemporary System Dynamics and Soft Systems Methodology. Rembert Aranda is managing director of Aragon Associates, Inc. (Derry, NH), a systems consulting firm; and adjunct professor of information systems at New York University's Information Technologies Institute. His 20 years of experience in software development includes consulting, engineering, business and strategic planning roles for a broad range of organizations. Thomas Fiddaman and Rogelio Oliva are doctoral candidates at MIT's Sloan School of management. Mr. Fiddaman specializes in creating simulation exercises based on system dynamics models for management and public policy issues. Mr. Oliva has extensive consultancy and management

training experience in quality management. Mr. Oliva's current research interests are systems methodologies, large systems change, organizational and group learning, operations in the service industry and Total Quality Management.

This is a joint meeting of the New England Software Quality Council and the Computer Society of the Worcester Section of the IEEE. It is scheduled for Wednesday, May 17, 1995, at Quantum Corporation, formerly Digital Equipment Corporation's Northeast Technology Center (SHR1), 333 South Street in Shrewsbury. The meeting will start at 6:00 PM and will end at 7:30 PM. Make a left onto South St. from Route 9 West (near Fretters) which is about 5 miles West of Rt. 495, then left to Quantum Corporation. For more information call Ric Perron at (508) 770-6371 or Jim Perry at (617) 455-4560.

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Apple's Workgroup Server as a WWW Site

Tom Barrieau, Apple Computer

Apple Computer's newly announced Internet Server Solution for the World Wide Web is an all-in-one package that includes a Power PC processor-based Workgroup Server and all the software needed to make the server accessible to others on the WWW. Tom Barrieau of Apple Computer will demonstrate Apple's new web server and provide an overview of Apple's Internet strategy. Beginner and advanced, hands-on Internet workshops are held between 6:30 and 7:00.

Meeting is on Thursday, June 15, 1995 at 7:00 PM in Digital Equipment Corporation (SHR3), Shrewsbury, MA. For more information call Al Reinhart, DisCom Systems at 508/869-6417.

1994 IEEE PACE Conference Highlights

Stan Tanenholtz

A video presentation of some key aspects of the 1994 PACE conference will be given at the April 26 Worcester County Section PACE meeting. The meeting will be held in room Commons B at the New England Electric Systems in Westboro at 7 P.M. For further information, call Stan Tanenholtz at 508-485-7185.

The presentation will include the keynote speaker Celia Desmond (Industry Liaison for Stentor Resource Center, formerly Bell Canada) who will present a view of "Information Networking in the Nineties". Additionally, there will be presentations of the following topics:

- A workshop on "Professional Skill Development"
- Two plenary sessions to include "The Fate of U.S. Engineers" and "Marketing Thyself".

Windows NT: Your Internet On Ramp

Rob Bennett, Microsoft

Windows NT is an Internet server, an Internet client, and an Internet platform for the next generation of custom applications. This presentation will demonstrate Windows NT's versatility as your on ramp to the Information Highway. Rob Bennett, Microsoft System Engineer, will demonstrate the new features of Windows NT 3.5 and provide an overview of Microsoft's Internet and networking strategy. Beginner and advanced, hands-on Internet workshops are held between 6:30 and 7:00.

Meeting is on Thursday, May 18, 1995 at 7:00 in Digital Equipment Corporation (SHR3), Shrewsbury, MA. For more information call Al Reinhart, DisCom Systems at 508/869-6417.

Electro 1995

Electro International is significantly expanding the scope of its upcoming Electro '95 trade show to include a major emphasis on surface mount technology and contract manufacturing. The show will be held at the Hynes Convention Center here on June 21 - 23, 1995.

Electro '95 is sponsored by Region 1, METSAC and CNEC of the International Electrical and Electronic Engineers (IEEE), and the New York and New England

Chapters of the Electronic Representatives Association (ERA).

Electro '95 will feature:

- A **surface-mount technology** and **electronic manufacturing services** conference track, with sessions covering component standardization, ball grid arrays, and flip chip and chip scale technologies
- Electro's **first working SMT production line** on the show floor, featuring products and equipment from Heller Industries, Mydata Automation, Panasonic, and MPM Inc.
- More than **600 exhibitors** and introductions of over **100 new products**

IEEE Sponsors Transatlantic Communications Exhibit at MIT

The Institute of Electrical and Electronics Engineers (IEEE) has brought a one-of-a-kind exhibit on transatlantic communications to U.S. shores for the first time, in a cooperative effort with the Massachusetts Institute of Technology (MIT) and the London-based Institution of Electrical Engineers (IEE). Funded by the IEEE, the exhibition, "Sailing Ship to Satellite: The Transatlantic Connection" is on display at the MIT Museum, Cambridge until Sept. 3.

The exhibit brings to life the conquest of a major communications barrier — the Atlantic Ocean — tracing the evolution of overseas communications from the laying of the first cable in the 1850s to satellite communications in the 1950s. Organized by the IEE, the largest international engineering society based in Europe, the exhibition documents history with rare photographs and engravings, popular souvenirs, posters, and original artifacts such as sections of the first telegraph cable from 1858. It also contains early instruments including the extremely rare 1836 needle telegraph from the MIT Museum's scientific instrument collection, and letters and telegrams from such notable figures as Samuel Morse and Thomas Edison.

Laying the transatlantic cable represented a major collaboration between the North Atlantic nations — Great Britain, Europe and North America — and is one of the most adventurous engineering projects in history. Its achievement reduced the communications gap between America and Europe from as much as six weeks to only a few hours. This exhibition captures the excitement of that time and the subsequent inventions that served as precursors of today's global communications technologies.

The MIT Museum is located at 265 Massachusetts Avenue in Cambridge. Hours are 9-5 Tuesday-Friday, 12-5 Saturday and Sunday. Admission is \$3 for adults, \$1 for seniors and students.