



The IEEE

# Newsletter

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

## Congratulations New Senior Members

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## North Jersey Section PACE: The Macroatomic Theory

At the June 9, 1994 meeting of the North Jersey Section's Professional Activities Committee for Engineers, the topic will be "The Macroatomic Theory." The speaker will be Hollis Richardson, author and researcher.

### About The Talk

The talk will explain the speaker's "Macroatomic Theory of the Universe" with which he can explain the development of thunderstorms, tornadoes, magnetic fields and other natural physical phenomena. Free copies of his book "What Makes the Earth Tick" will be made available to attendees.

Throughout the centuries mankind has wondered about the universe. To try to explain it, man has used his imagination to concoct fairy tales. The fairy tale process evolved into the signs of the zodiac and astrology.

Today, we have more sophisticated theories. Some of them are: The Big Bang, Theory of Relativity, Neutron Stars, Black Holes, and the String Theory. The trouble with many of these theories is that there is no way to prove or disprove them. We cannot hope to explain the solar system or the universe until we first understand the earth and its many phenomena.

For the past 35 years Mr. Richardson has made a comprehensive study of the earth's many phenomena and has derived a theory that seems to explain and perfectly correlate all of the earth's major phenomena and many in the solar system.

Several crucial tests have been devised to prove or disprove "The Macroatomic Theory of the Universe" right here on earth, but so far Richardson has been unable to interest earth scientists and government agencies in making these tests as the theory is so radically different from present concepts.



### About The Speaker

Hollis Richardson moved to New Jersey from Georgia to pursue a career as an electrical and electronics engineer with RCA, Westinghouse, Western Union, and finally with Picatinny Arsenal.

He is a member of the Phi Kappa Phi, Sigma XI Scientific Research Society, The American Geophysical Union, Toastmasters International, and the Morris Museum Astronomical Society.

### All Welcome

To learn more about the world we live in, plan on attending. You do not need to be an IEEE member to attend.

**Time:** 7:30 PM, Thursday, June 9, 1994.

**Place:** JCP&L Co., 300 Madison Avenue and Punch Bowl Road, Morristown, N.J.

### Further Information:

Robert Sinusas (201) 228-3941.

**JUNE, 1994**

# JUNE, 1994

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### NEWSLETTER STAFF

Editor..... M.M. Perugini  
Business Manager..... A.M. Beattie

**Deadline for receipt of material** is the 1st of the month preceding the month of publication. All communications concerning editorial and business matters, including advertising, should be addressed to: The IEEE Newsletter, c/o Girard Associates, Inc., 6 Robert Terrace, P.O. Box 455, Mt. Arlington, N.J. 07856 (201) 398-5524.

### IEEE North Jersey Bulletin Board System:

0 TO 9600 baud, 8 bits, no parity, 1 stop bit,  
BBS phone number: 201 991-9165  
(Courtesy of United Societies of Engineering & Science of NJ, Inc.)

### REPORT ADDRESS CHANGES TO:

IEEE Service Center  
445 Hoes Lane, P.O. Box 1331  
Piscataway, N.J. 08854-1331  
(908) 981-0060

It is not necessary to inform the North Jersey Section when you change your mailing address. "The IEEE Newsletter" and other section mailings use a list provided by IEEE's national headquarters in New York. This means the Section has no need to maintain a mailing list or addressing plates. Section membership records are changed when Headquarters notifies us.

### SECTION OFFICERS

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(914) 968-2500, ext. 2304  
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Dave Dietsche  
Richard Estock

**The North Jersey Section Executive Committee usually meets the first Wednesday (except holidays and December) of each month at 7 PM. These meetings are open to all members. Information on meeting agenda is available from Mel Lewis, Section Secretary at (914) 968-2500, ext. 2304.**

**Elected Section Officers are listed above.**

## North Jersey PES/IAS: Robotics In Power Plants

On June 16, 1994, the North Jersey Power Engineering/Industrial Application Society Chapters will present a talk on "Application of Robotics In Power Plants." The speaker will be Harry Roman.

### About The Talk

The presentation will cover: where and how robotics have been successfully applied; their benefit-to-cost experience; the connection between robots and artificial intelligence; and the role that robots can play in future power plant design and operation.

### About The Speaker

Harry Roman is Principal Engineer at Public Service Electric & Gas. He founded and served as Chairman of the Utility/Manufacturers Robot Users Group and has published numerous technical papers and articles on the subject.

Time: 7:00 PM, Thursday, June 16, 1994.

Place: JCP&L Co., Punch Bowl Room,  
300 Madison Avenue, Morristown, N.J.

### Additional Information:

Ken Oexle (JCP&L) (201) 455-8481.

## Vehicular Technology Soc.: High Technology In Land Transportation

On June 30, 1994, the North Jersey Chapter, IEEE Vehicular Technology Society will present a talk on "High Technology In Land Transportation." The speaker will be Linda Sue Boehmer, President LSB Technology, and Vice President of the IEEE Vehicular Technology Society.

Date: Thursday, June 30, 1994.

Time: 7:30 PM.

For Meeting Location: Contact Mel Lewis  
(914) 968-2500, ext. 2304.

## Engineers Network Association

If you are an experienced engineer seeking employment at a salary of at least \$35,000 per year, we invite you to join the Engineers Network Association, a metro area weekly forum for career networking and the exchange of job leads. Bring at least one unpublicized job lead that you do not intend to pursue, to share with others who may be interested. Dues are \$2 per meeting.

The Engineers Network Association meets 1:30 PM, every Wednesday at the Annunciation Church, W. 50 Midland Avenue, Paramus, N.J. G. S. Parkway to exit 163, then Route 17 north for 1/2 mile to "Midland Ave. (west) - Glen Rock" exit; Annunciation Church is just ahead on the left. From I-80: exit 62 to G.S. Parkway north, and proceed as above.

For further information, call Merrill Rutman (Member, IEEE), at (201) 447-6041.

## North Jersey Section PACE: Start And Manage Your Own Business

At the July 14, and August 11, 1994 meetings of the North Jersey Section's Professional Activities Committee for Engineers, "How To Start And Manage Your Own Business" will be presented by SCORE, Chapter 24, Clifton Branch.

Thursday, July 14, 1994

### Section I:

1. Why Start a Business?
  - a. What is SCORE?
  - b. The 4 M's.
  - c. Why do businesses fail?
  - d. The Counselling session.
2. Legal Structures and Registration
  - a. Sole Proprietor.
  - b. Partnerships.
  - c. Corporations (also 'S' corporations).
  - d. LLC-Limited Liability Companies.
3. Finances
  - a. Record keeping.
  - b. Accounting and Taxes.
  - c. Insurance.
  - d. Buying an Existing Business.

Thursday, August 11, 1994

### Section II:

4. Marketing
  - a. Research the market place.
  - b. Know your products and competitors.
  - c. Marketing plan.
  - d. Methods of advertising.
5. Business Plan
  - a. Why is it needed?
  - b. Detailed review of the outline.
6. Financing the Business
  - a. Sources of funds
  - b. Information requirements
7. Wrap-Up
  - a. Location.
  - b. Franchises.
  - c. Patents, proprietary rights, confidential disclosure.

Time: 7:30 PM, Thursday, July 14, and  
7:30 PM, Thursday, August 11, 1994.

Place: JCP&L Co., 300 Madison Avenue  
and Punch Bowl Road, Morristown, N.J.

### Information:

Robert Sinusas (201) 228-3941.



## North Jersey Section Activities JUNE and JULY 1994

**June 1**—"North Jersey Section Executive Committee Meeting"—7:00 PM, Plant 11, GEC-Marconi, 164 Totowa Rd., Totowa, N.J. Mel Lewis (914) 968-2500, Ext. 2304.

**June 9**—"The Macroatomic Theory"—North Jersey Section PACE, 7:30 PM, JCP&L Co., 300 Madison Ave. & Punch Bowl Road, Morristown, N.J. Robert Sinusas (201) 228-3941.

**June 16**—"Application Of Robotics In Power Plants"—North Jersey PES/IAS, 7:00 PM, JCP&L, 300 Madison Ave., Morristown, N.J. Ken Oexle (JCP&L) (201) 455-8481.

**June 29**—"Workshop On Redesigning The Job Changing System"—NY/North Jersey Engineering Management System, 7:00 PM. **For meeting location contact** Al Connelly (201) 831-8171.

**June 30**—"High Technology In Land Transportation"—IEEE Vehicular Technology Society, 7:30 PM. **For meeting location contact** Mel Lewis (914) 968-2500, ext. 2304.

**June 30**—"The Federal SBIR Program—Opportunities For Small Business R&D"—IEEE Consultants' Network, 7:30 PM, GEC-Marconi Facility, 150 Parish Drive, Wayne, N.J. Jim Boyd (201) 584-0329.



### Upcoming Meetings

**July 6**—"North Jersey Section Executive Committee Meeting"—7:00 PM, Plant 11, GEC-Marconi, 164 Totowa Rd., Totowa, N.J. Mel Lewis (914) 968-2500, Ext. 2304.

**July 14**—"Section One: Start And Manage Your Own Business"—North Jersey Section PACE, 7:30 PM, JCP&L Co., 300 Madison Ave. & Punch Bowl Road, Morristown, N.J. Robert Sinusas (201) 228-3941.

**Aug. 3**—"North Jersey Section Executive Committee Meeting"—7:00 PM, Plant 11, GEC-Marconi, 164 Totowa Rd., Totowa, N.J. Mel Lewis (914) 968-2500, Ext. 2304.

**Aug. 11**—"Section Two: Start And Manage Your Own Business"—North Jersey Section PACE, 7:30 PM, JCP&L Co., 300 Madison Ave. & Punch Bowl Road, Morristown, N.J. Robert Sinusas (201) 228-3941.

**Sept. 22**—"Seminar: An Overview Of Multimedia Technologies And Services"—IEEE NJ Coast Section Computer Chapter, 8:30 AM-3:00 PM, Ocean Place Hilton, Long Branch, N.J. K. Raghunandan (908) 758-2078.

**Nov. 7-8**—"1994 Adaptive Antenna Systems Symposium & Electronic Exhibition"—IEEE LI Section, Radisson Plaza Hotel, Melville, N.Y. Thomas A. Campbell (516) 757-3008.

**Members and Non-Members Welcome**  
**PLEASE POST**

# Professional Activities Committees for Engineers NEWS

The following article is reprinted from the April, 1994 issue of the "American Engineer" a publication of the American Engineering Association, with permission.

Jan. 1994, (c) Robert A. Rivers, PO Box 129, Union, NH 03887

## RECORD 4.7%, (24,000) ELECTRICAL ENGINEERS UNEMPLOYED

In the face of general increases in employment and declines in unemployment, engineers and electrical engineers in particular are experiencing declines in employment and record high levels of unemployment.

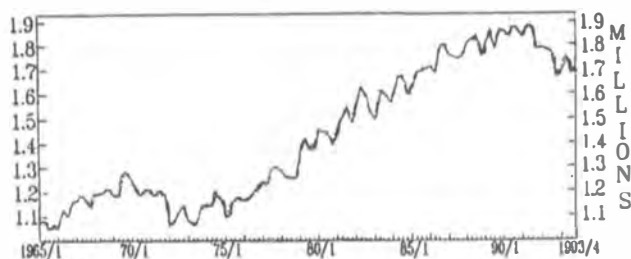


Figure 1. Quarterly Engineering Employment

Figure 1 shows engineering employment in millions from the first quarter of 1965 to this just completed fourth quarter of 1993. At its peak, engineering employment reached 1,890,000 in the third quarter of 1990. Its most recent minimums were 1,668,000 in the fourth quarter of 1992 and 1,683,000 in the third quarter of 1993. The drop in employment shown by the data does not however show the extent of career dislocations for engineers. More appropriately, one should extrapolate the employment data of the earlier eighties to estimate the available supply since continued employment, new graduates and immigrants of that period were permitting the growth. Since then, reduced new graduates has probably been compensated for by significant immigration increases leaving an expanded supply.

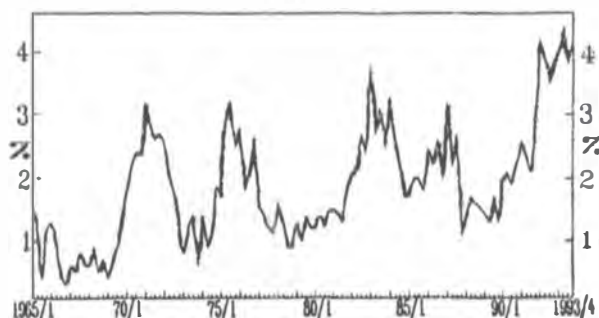


FIG. 2. Quarterly Engineering Unemployment

Figure 2 shows engineering unemployment for the same period as employment. It clearly shows the effect of recessions on unemployment. This latest engineering recession reached record levels of unemployment in two quarters of 1992 and all of 1993. In the last two years, the number of unemployed ranged from 64,000 to 81,000. The accumulated dislocated is in the 300,000 to 400,000 range as estimated from the extrapolated demand and the number employed. Adjusted unemployment would be close to 20%.

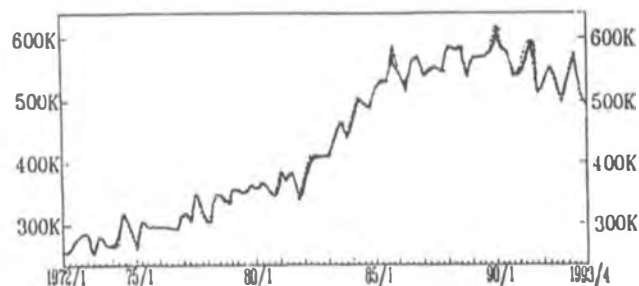


Fig.3. Electrical Engineering Employment

Figure 3 shows Electrical Engineering Employment topping out at 622,000 in the first quarter of 1990 and in a downtrend since that time reaching 490,000 in the fourth quarter of 1993. Even using the slow growth period of the later eighties as a proxy for the supply, a supply-demand gap in excess of 20% has opened up since that time.

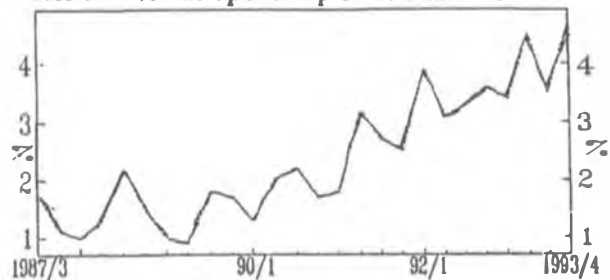


Fig. 4, Electrical Engineering Unemployment

Figure 4 shows electrical engineering unemployment since 1987. It shows an increasing unemployment trend since the first quarter of 1990 and long past the time that the recession was declared to be ended in the general economy. It reached a record high level of 4.7% with 24,000 unemployed in the fourth quarter of 1993.

1. Employment and unemployment data is from the Bureau of Labor Statistics (unpublished) based on the Current Population Survey.

(To receive a free copy of AEA's publication "American Engineer" send a SASE to: AEA, P.O. Box 820473, Fort Worth, TX 76182-0473.)



## **NY/North Jersey-EMS: Workshop On Job Changing System**

On June 29, 1994, the Engineering Management Society will run a workshop from the customer point-of-view on "Redesigning The Job Changing System." The speaker will be Dave Perry.

### **About The Topic**

The direction that job changing is taking is suggested by the approach some businesses use in redesigning their methods. Changes includes wider use of computers and communications.

The NJ State Department of Employment sponsors the Professional Service Group (PSG), a self-help employment service. Its emphasis is training the job hunter in marketing and networking skills. PSG operates a computer skill bank to match job orders to a computerized skill bank and is considering use of a BBS network to link its offices around the State and to exchange job leads.

## **Call For Papers 1994 Adaptive Antenna Systems Symposium and Electronic Exhibition - November 7 & 8, 1994**

The IEEE LI Section, AEA, AP, MTT and SP Chapters, is sponsoring a two-day Adaptive Antenna Systems Symposium and Electronic Exhibition to be held at the Radisson Plaza Hotel, Melville, New York. The symposium's objective is to disseminate knowledge of recent theoretical, technological, and practical advances in this multi-discipline field and to identify technology limitations which constrain economical implementation of these antenna systems.

**November 7, 1994**

### **Adaptive Antenna Systems and Signal Processing**

The first day's emphasis will focus on the following system design considerations and issues: System architecture; communication applications; radar applications array theory; signal processor architecture; algorithms; operating environment; system modeling; and channel balancing.

**November 8, 1994**

### **Microwave, IC and Signal Processor Technologies**

The second day's emphasis will focus on microwave and integrated circuit technology, self test techniques, maintainability and reliability issues and will include: Microwave technology; receivers; radiating devices; integrated circuit technology; signal processors; software; diagnostics; self-test; error effects; reliability; maintainability.

### **Abstracts**

Technical abstracts should be limited to 300 words including the paper's title and stressing results, conclusion, significance of the work and be accompanied by full name(s) of the author(s), with affiliation(s), contact telephone and fax number(s). Papers that miss the deadlines may be dropped from the program.

**June 14, 1994** - Mail abstract to Adaptive Antenna Systems Symposium, PO Box 36, Greenlawn, NY 11740-0036.

**July 15, 1994** - Corresponding author will receive notice of acceptance or rejection.

**October 1, 1994** - Manuscript and brief biography on original photo-reproducible form and author's black and white photo.

**Further Information:** Mr. Thomas A. Campbell (516) 757-3008; Dr. John C. Herper (516) 754-1413, Fax (516) 574-1151.

The IEEE San Diego Section operates a skill bank using a bulletin board program. The IEEE is getting ready to come up with a similar approach with a program called JOBS-USA. The IEEE PACE Employment Committee is seeking solutions to the job changing situation. INTERNET carries a jobs-file that may be downloaded, for those who subscribe.

What the job hunter wants is to speed up the process and make it easier to find openings. Many positions today come from the hidden job market and small hi-tech companies. If technology is to aid the job changing system in the form of the BBS, a way must be found to reach the job hunter and employer who has access to a fax but no modem.

### **About The Speaker**

Dave Perry has worked as an engineer and programmer since 1949. He is a Life Member of IEEE and is serving as chairman of the Intersociety Committee of the North Jersey Section. He is founder and Executive Director of the United Societies of Engineering & Science of NJ, of which the North Jersey Section is a member. Dave Perry is developing a bulletin board network called JOBSnet.

**Time:** 7 PM, Wednesday, June 29, 1994.

**Place:** Call for location.

**Information:** Al Connelly, (201) 831-8171; or Shelli Kanet (718) 426-1731.

## **No. NJ Consultants' Network: Federal SBIR Program For Small Business R&D**

On June 30, 1994 the IEEE Consultants' Network of Northern NJ will present "The Federal SBIR Program - Opportunities For Small Business R&D." The speaker will be Michael Miller.

### **About The Topic**

This presentation will be an introduction to the Federal SBIR Program, a program established exclusively for small businesses to enhance the development and commercialization of new technologies in the U.S. Mr. Miller will describe the program, explain how individuals and small firms can get involved and provide tips on competing successfully for SBIR funding.

The SBIR Program budget will grow from \$500 million in FYE '93 to over \$1 Billion in FYE '97. Through the program, eleven major R&D contracting and granting agencies request research in technologies spanning a broad spectrum of topic areas. To be eligible, a firm must be for-profit, employ less than 500 people and be U.S. owned. Many successful SBIR awardees are one-person firms.

### **About The Speaker**

Michael Miller is Principal of Michael Miller Associates (MMA) in Annandale, Virginia. He is also the Washington Technical Liaison commissioned by the New Jersey Commission on Science and Technology to help small high-tech businesses in New Jersey pursue Federal R&D funding opportunities. Mr. Miller is an engineer/marketer involved exclusively in advanced R&D fields for over 25 years and is a former staff member of the Battelle Memorial Institute.

### **About The Consultants' Network**

The IEEE Consultants' Network of Northern NJ was founded to encourage and promote the use of independent technical consultants by business and industry. Meetings are held on the last Thursday of each month. To receive a complimentary copy of the Directory of Consultants and Consulting Services, call Alex Richardson (201) 535-3440.

### **OPTIONAL PRE-MEETING DINNER**

Members are invited to come and meet the speaker at the Steak and Ale Restaurant in the American Way Mall, Rte 46 East, Fairfield, N.J. For directions, (201) 227-2134; For reservations (**REQUIRED**), call Frank Scholten (201) 994-9819.

**Time:** 7:30 PM, Thursday, June 30, 1994.

**Place:** GEC-Marconi Facility, 150 Parish Drive, Wayne, NJ.

**Information:** For directions or up-to-date meeting status call (201) 736-0771. For other questions regarding the Consultants Network, call Jim Boyd (201) 584-0329.

IEEE NJ Coast Section Computer Chapter  
PROFESSIONAL DEVELOPMENT SEMINAR  
**An Overview of Multimedia Technologies  
and Services**

Dr.A.Narasimhan, Tech.Ed Center, AT&T Bell Labs

**ABSTRACT**

Multimedia is an emerging and exciting field that requires integration of telecommunication, audio/video technologies, computing hardware and software, and information services. This seminar discusses the concepts of multimedia, why multimedia is becoming a key technology, what are the key applications, and the need for various multimedia component-technologies like compression, storage, hardware/software, etc. An overview of architectural requirements for supporting multimedia will be discussed. New networking technologies such as ATM, wireless LANs, and optical networks used in multimedia systems will be described. The course concludes with a look at future prospects, challenges for multimedia and its potential effect on home entertainment, work environment, communication and computing in the 90s.

**Seminar Topics:** Video conferencing, Information services, Multimedia collaboration, Interactive TV, Multimedia mail, software and databases. Compression (MPEG, JPEG). Communication technologies: Frame Relay, B-ISDN/ATM, and SONET. Multimedia market trends and its future.

**Luncheon Speaker:** Dr.Sid Ahuja, Head, Multimedia communications department, AT&T Bell Labs  
**TOPIC:** *Recent advances in Multimedia Communications.*

**DATE:** Sept 22, 1994 **TIME:** 8.30 am -3pm  
**LOCATION :** Ocean Place Hilton, Long Branch, NJ  
**REGISTRATION:** \$195(non-Mem), \$175(Mem) and \$125 (students), includes coffee, pastries and lunch..

For Information call/contact:

- (1) K.Raghunandan, 908-577-4202,  
Fax: 908-577-4537 email: raghu@fjld.att.com  
(2) N.Natarajan, 908-758-2078, Fax: 908-758-4268,  
email: nat@cc.bellcore.com  
(3) Bala S. Prasanna, Room 1A-310, AT&T Bell Labs,  
480, Red Hill Road, NJ 07748, Tel: 908-615-4486,  
Fax: 908-615-4637, email: joypras@corona.att.com

Early bird Registration : June 15, 1994 ( SAVE \$10)  
Registration deadline: July 15, 1994



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