

The



IEEE Newsletter

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

NJ Communications Society:
**Integrated Access
Control and Detection
for QoS in Multimedia
CDMA Networks**

On Wednesday, May 8th 2002, the IEEE Communications Society North Jersey Chapter, along with the NJIT Electrical and Computer Engineering Department, will sponsor a talk entitled "Integrated Access Control and Detection for QoS in Multimedia CDMA Networks" by Cristina Comaniciu of Princeton University.

About the Talk

With the ever-increasing demand for wireless systems to support multimedia applications, resource management techniques become crucial to guarantee QoS. In this talk, we consider the problem of integrating access control and receiver design for a CDMA system in which bursty real-time and non real-time traffic coexist. We first investigate integrated voice/data CDMA systems using conventional receivers, and propose access control protocols that are based on estimating the residual capacity available for data users, using a simple, adaptive prediction technique based on delta modulation. We then discuss how this design can be applied for web traffic access in multimedia CDMA systems. The challenge is that the web traffic is highly bursty, hence, the offered load per connection is difficult to estimate. As a solution, we propose a www traffic admission control that adaptively estimates the aggregate average load based on load measurements in a sliding observation window. Finally, we consider the benefits of integrating access control with multiuser detection. We propose an access control scheme that gives priority to real-time users. Non real-time traffic is scheduled for transmission such that all users can achieve their target SIRs by choosing appropriate transmit powers, as well as receiver filter coefficients. We show that significant gains can be achieved by integrating access control and multiuser detection and discuss

tradeoffs between the implementation complexity and system performance.

About the Speaker

Cristina Comaniciu received her MS Degree in Electronics from the Polytechnic University of Bucharest in 1993, and a PhD Degree in Electrical and Computer Engineering from Rutgers University in December 2001. From 1998 to 2001 she was with the Wireless Information Network Laboratory (WINLAB) at Rutgers University, working on integrated access control and detection algorithms for multimedia CDMA systems. She is currently a postdoctoral fellow in the Electrical Engineering Department at Princeton University. Her research interests include radio resource management, admission control for multimedia wireless systems, multiuser detection, cross layer design for multimedia wireless networks, and modeling and performance analysis for wireless systems.

All Welcome!

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

Time: 11:15 AM (with refreshments), Wednesday, May 8, 2002.

Place: New Jersey Institute of Technology (NJIT), Room 202, ECE Center, Newark, NJ. Directions are available at <http://www.njit.edu/University/Directions.html>.

Information: Dr. Nirwan Ansari (973) 596-3670 (nirwan.ansari@njit.edu) or Amit Patel (a.j.patel@ieee.org). Also check <http://www-ec.njit.edu/~ieeenj> for the latest updates.

Advance to Senior Member Grade

To become a Senior Member, you need ten years experience. A Bachelors degree counts for three of those years and Masters and Doctorates each count for one year. You don't have to be an IEEE member for ten years. The dues for Senior Members, Members and Associates are the same. Senior Member applications are evaluated by the Application & Advancement Committee that meets most months at different locations in the United States. The IEEE will send each new Senior Member a wood and bronze plaque.

To get information and an application, contact Don Weinstein, Kulite Semiconductor, One Willow Tree Road, Leonia, NJ 07605-2239, (201) 461-0900 ext 234 mornings, FAX (201) 461-0990, Please include your mailing address.

Associate Members - Advance to a Higher Grade

Associate Members may qualify for Member or Senior Member grades. To get information and an application, give me your mailing address and the grade you want to advance 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.

Reminder: The June Newsletter will be electronic only

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IEEE NJ SECTION HOME PAGE

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

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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.

NJ Computer Chapter:

Usage of Low Cost Aviation Simulators

On Monday, May 6th, 2002, the IEEE North Jersey Section Computer Chapter and the Civil Air Patrol Lone Eagle Squadron, Morristown, NJ, will host a presentation on "Usage of Low Cost Aviation Simulators" by Eli Rohn.

About the Talk

In 90 minutes, this dynamic presentation, filled with pictures and scientific facts, will cover the following and more.

First, the audience will learn about the evolution of flight simulators. Only a few years ago aviation simulators were bulky and costly. However, new hardware and software development have made these professional tools accessible and affordable to all. Now every pilot and wanna-be pilot can purchase professional flight simulation software for less than \$100 that runs on a PC.

Next, we'll learn that with some additional affordable equipment and in the presence of a certified instrument flight instructor, pilots can train and log some of the time required for certification using their own PC.

Further, we'll learn that professional Boeing 747 pilots can download and access online a 747 flight simulator that is used by both the airlines and NASA.

Finally, we'll learn about the existence of hundreds of virtual online communities of flight simulator enthusiasts. These virtual Air Traffic Control communities manage the skies where hundreds of virtual airline aircraft fly.

About the Speaker

Eli Rohn is a certified instrument rated pilot. He is the Managing Member of Rohn Consulting LLC (<http://www.rohnlc.com>), a computer technology company that renders consulting services to the Fortune 1000 companies. Eli also teaches Computer Science and conducts research at NJIT and has published two technical books and over 30 professional articles.

All Welcome!

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

Time: 7:00 PM, Monday, May 6, 2002. Pre-meeting dinner 5:30 PM at the Hanover Marriott, Hanover, NJ, (973) 538-8811.

Place: Public Meeting Room, Morris County Library, 30 E. Hanover Ave, Whippany, NJ, (973) 285-6930.

Information: Howard Leach (908) 255-1634 or h.leach@ieee.org.

Consultants' Network is 10 Years Old!

This year, IEEE Consultants' Network of Northern NJ is celebrating its 10th anniversary.

In the early 1990's, IEEE-USAB coordinated a nationwide effort designed to form local organizations of IEEE members, who operated as independent technical professionals. These entities were to become Consultants' Networks. A series of meetings was held throughout the country; representatives of IEEE-USAB and of networks already in existence talked to IEEE members in independent practice about benefits of the new organizations.

One such meeting took place in Madison, NJ in early 1992. It resulted in several IEEE members operating their own consulting businesses getting together to create the IEEE Consultants' Network of Northern NJ (C>NNNJ). Many of Network's original founders are still actively involved in the workings of the organization.

Over the past 10 years, C>NNNJ was very successful in its mission. Within the IEEE, it continues to express the views and interests of members in independent practice. The nationwide body, IEEE AICN (Association of Independent Consultants' Networks) serves as an umbrella organization, coordinating and representing the approximately 30 networks in existence throughout the country.

Locally, C>NNNJ serves its members by holding meetings, workshops and seminars, attempting to present information useful in day-to-day operation of independent businesses. Most engineers are quite savvy technically, but are in need of skills and tricks of running a business. C>NNNJ strives to fill that gap, and to provide opportunities for networking between the members, both socially and professionally.

C>NNNJ, through its continuing publicity campaigns, encourages and promotes the use of independent professionals by business and industry. The groups Web site (TechnologyOnTap.org) showcases its individual members. Periodic postal mailings raise awareness of the Network among technology-related companies in the state.

IEEE members interested in joining the Network may contact Jim Boyd at j.boyd@ieee.org. For current meeting information, call (973) 728-0344 or visit the Web site.

IEEE North Jersey Section Activities May 2002



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May 1—"NJ Section Executive Committee Meeting" – 7:00 PM, ITT, 100 Kingsland Rd, Clifton, NJ. Wayne Owens at (201) 767-3400 ext. 226 or wowens@crestron.com.

May 4 & 5—"27th Annual Trenton Computer Festival", 10:00AM. See <http://www.tcf-nj.org> for details.

May 6—"Usage of Low Cost Aviation Simulators" - NJ Computer Chapter, 7:00 PM, Public Meeting Room, Morris County Library, 30 E. Hanover Ave, Whippany, NJ. Howard Leach (908) 255-1634 or h.leach@ieee.org.

May 8—"Integrated Access Control and Detection for QoS in Multimedia CDMA Networks" - NJ Communications Chapter, 11:15 AM, NJIT, 202 ECE Center, Newark, NJ. Dr. Nirwan Ansari (973) 596-3670 (nirwan.ansari@njit.edu) or Amit Patel (a.j.patel@ieee.org). Also check <http://www-ec.njit.edu/~ieeenj> for the latest updates.

May 8—"Region 1 Director Gerry Alphonse Meets North Jersey" – NJ PACE, 6:30 – 8:45 PM, Clifton Memorial Library, 292 Piaget Ave, Clifton, NJ. Richard F. Tax, (201) 664-6954, rtax@bellatlantic.net

May 15—"Spring Packaging Symposium" - Lucent Technologies, Bell Laboratories, Murray Hill, NJ. See <http://www.imaps.org/calendar.htm> for details. Contact Bill Greig at wgreig@worldnet.att.net for more information.

May 16—"Circuit Breaker Solutions" - NJ IAS/PES Chapters, 7:00PM, Eaton/Cutler-Hammer Engineering Services, 690 Rahway Avenue, Union, NJ. Ron Quade at (908) 624-2365.

May 23—"So, You Want To Market Your Consulting Business?" – NJ Consultants' Network, 7:30 PM, MCE/KDI Integrated Products, 60 S. Jefferson Road, Whippany, NJ. Robert Walker (973) 728-0344 or www.TechnologyOnTap.org.

Upcoming Meetings

June 5—"NJ Section Executive Committee Meeting" – 7:00 PM, ITT, 100 Kingsland Rd, Clifton, NJ. Wayne Owens at (201) 767-3400 ext. 226 or wowens@crestron.com.

Members and Non-Members Welcome PLEASE POST

NJ PES/IAS:

Circuit Breaker Solutions

On May 16, 2002, the IEEE North Jersey Chapters of IAS/PES will feature a talk on the subject of "Replacement, Recondition, Retrofit and Retrofill of Industrial Grade Low and Medium Voltage Circuit Breakers." The Speaker will be Ronald W. Quade, P.E. of Eaton/Cutler-Hammer Engineering Services and Systems.

About the Talk

With the installed base of industrial electrical equipment aging, a common problem facing operators is the reliable operation of their plants. Replacing switchgear with new is often prohibitive both in cost and the outage time required for replacement. Further, matching new switchgear to existing footprints, conduits, etc. requires custom switchgear and extra labor at significant additional cost.

Alternatively, there are many maintenance and upgrade solutions available. Solutions for circuit breakers include replacement, reconditioning,

retrofit and cell retrofill. Replacement consists of a new circuit breaker that fits in the existing switchgear cell. Reconditioning consists of tearing down the circuit breaker to its smallest component level and rebuilding it to its original manufacturers specifications. Retrofit consists of upgrading the circuit breaker's protective trip system. Retrofill consists of replacing the switchgear cell to accept a new circuit breaker.

About the Speaker

Mr. Quade received his Masters Degree in Power Engineering from NJIT. He has held several positions with GPU

Energy and now works as a Senior Sales Engineer with Eaton/Cutler-Hammer Engineering Services and Systems.

Time: 7:00 PM, Thursday, May 16, 2002.

Place: Eaton/Cutler-Hammer Engineering Services, 690 Rahway Avenue, Union, NJ 07083. Directions: Route 82 Morris Avenue from either Springfield or Union to Rahway Ave, or Route 22 east to Springfield Road North (Union) to Rahway Ave.

Information: Ron Quade (908) 624-2365.

NJ Consultants' Network:

So, You Want To Market Your Consulting Business?

On Thursday, May 23, 2002, the IEEE Consultants' Network of Northern NJ (CNNNJ) will present an outstanding seminar to help you market your consulting business.

About the Meeting

Consulting is a growing \$3 Billion industry. This seminar will establish a blueprint for marketing your own successful consulting practice. Key traits and strengths of successful entrepreneurs will be examined in addition to understanding how to develop your own "niche" in the highly competitive consulting field. Balancing content skills [technical expertise] with process skills [communication and interpersonal relationships] will also be discussed. Finally, case studies will be incorporated to offer practical evidence on how to market your consulting firm.

About the Speaker

Niroo P. Kamdar is the President and CEO of Summitry Integrated Resources, Inc., the leading authority on product portfolio management. Mr. Kamdar founded this consulting company in 1985 after spending close to 15 years as head of the Worldwide Forecasting and Planning Group at General Foods. Today, Mr. Kamdar can count PepsiCo, Kraft Foods, Ford Motor Co., Revlon, Clairol, Pillsbury and Gillette as a few of his Fortune 100 clients. Most recently, Mr. Kamdar was selected as the 2001 Businessman of the Year by the Republican National Committee and is a nominee for the 2002 Ernst & Young Entrepreneur of the Year.

The 3-Minute Pitch

Continuing with its series of workshops, Consultants' Network will present the "3-minute Pitch". During the workshop, which follows our feature presentation, volunteers will be asked to briefly talk about their consulting practice – as if trying to introduce themselves to strangers met in an elevator. Members of the audience will rate the effectiveness of the pitch and offer some friendly critique.

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. There is no charge for admission.

Time: 7:30 PM, Thursday, May 23, 2002.

Place: MCE/KDI Integrated Products, 60 S. Jefferson Road, Whippany, NJ. (Use the rear entrance).

Information: For directions and up-to-date meeting status, call Robert Walker (973) 728-0344 or visit our website at www.TechnologyOnTap.org. To download a map to KDI, go to: <http://www.kditriangle.com/directions.htm>.

NJ Section PACE:

Region 1 Director Gerry Alphonse Meets North Jersey

Gerard Alphonse, Director of Region 1, will meet members of the North Jersey Section, on May 8, at a meeting hosted by the Section's Professional Activities Committee.

About the meeting

This meeting provides Members with the opportunity to meet, and discuss the professional aspects of their engineering profession with one of the most knowledgeable and influential Members of IEEE's Board of Directors.

About the Speaker

Dr. Alphonse has a PhD in Electrophysics from the Polytechnic Institute of Brooklyn. He joined the RCA Laboratories David Sarnoff Research Center in 1959, where he is currently leader and program manager. To mention a few, his career involves pioneering work and major contributions in the following areas: superconductive computer and microwave devices, photochromic cathode ray storage and projection tubes, ultrasonic imaging for medical diagnostics, optical disc development, the psychophysics of large area displays, vision modeling, and fiber optic gyroscopes. His work in optoelectronics has led to the invention in 1986 of the world's highest performance SLD, a key component in fiber optic gyroscopes, low coherence tomography, optical amplifiers for telecommunications and tunable external-cavity lasers.

Dr. Alphonse has published over 80 technical articles and holds over 45 US patents.

He has served as adjunct professor in the Electronic Physics Department at LaSalle University and Department Chairman. He has also taught courses in the Electronic Technology Department at Trenton State College

From 1975-1976 he was a consultant to the National Science Foundation. His honors and awards are too extensive to mention here.

With IEEE he has contributed at the Section and Chapter level and at the Regional, Technical, Educational and United States Activities Boards. Beginning with the offices and Chairmanship of Princeton Section, he

served on the Metropolitan Sections Activity Council, a member of the Electro BoD and the Region 1 Executive Committee. He served on the: Fellows Committee, History Committee, and IEEE-USA VP of Operations, Member of Board, USAB Controller, Member of IEEE-USA Today's Engineer Magazine Advisory Board, Chair USAB Finance Committee (1996-97). Dr. Alphonse is a Member of the IEEE Finance Committee and USAB Task Force on Engineering Data Base.

Gerry is well known to members of the IEEE at all levels. There are 50,000 Members and 21 Sections in Region 1.

Welcome!

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

Time: 6:30 to 8:45 PM, Wednesday, May 8, 2002.

Place: Clifton Memorial Library, 292 Piaget Ave, Clifton, NJ, (973) 772-5500.

Information: Richard F. Tax, (201) 664-6954, rtax@bellatlantic.net.

IEEE Virtual Museum Launched

Piscataway, NJ -- Thomas Edison didn't invent the light bulb, so why does everyone think he did? What was the first computer? How did the patterns in a Utah cornfield lead to the development of TV? What is the "X" in an X-ray? Why are Alvin and the Chipmunks part of a museum about technology?

The answers to these questions and more are found in the new IEEE Virtual Museum launched at <http://www.ieee.org/museum>. Designed for educators, pre-college students, and the general public, the virtual museum debuted with two exhibits containing audio and video clips, and interactive features: Socket to Me! How Electricity Came to Be and The Beat Goes On: How Sounds are Recorded and Played.

Three more exhibits are in production and are scheduled for release by third quarter 2002. These will explore the different applications of microwaves, the works of Thomas Edison, and contributions women have made to electrical and information technologies.

The IEEE Virtual Museum explores the global social impact of electrical and information sciences and technologies and demonstrates the relevance of engineering and engineers to society. It is supported by the IEEE Foundation, the IEEE Life Members, and the Trustees of the IEEE History Center.