

The



IEEE Newsletter

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

NJ PES/IAS Chapters:

Energy Conservation Series - Retro-Commissioning

On October 18, 2006, as part of an ongoing series of free seminars on the topic of energy conservation, the PES and IAS Chapters will sponsor an evening discussion on Retro-Commissioning by Keith Rinaldi.

About the Meeting

Are calibration and scheduling issues unnecessarily increasing your operating costs? Are you confident that mold and indoor air quality issues are not a problem in your facility? Just because space temperature and humidity control are excellent, doesn't mean the HVAC systems are as efficient as they can be.

Retro-commissioning is a rigorous and systematic process of discovering and correcting HVAC/ utility system defects in existing systems so that the building will function as intended. The presentation will include of overview of the retro-commissioning process and its stages of discovery and analysis. With simple paybacks of less than 12 months, retro-commissioning can be a quick and easy way for you to lower your energy costs and increase your building's efficiency.

Attendees will gain a basic understanding of the process and its benefits and what to look for in a qualified retro-commissioning provider.

About the Speaker

The presenter will be Keith Rinaldi, Vice President, Field Engineering Services.

A founding member of the field engineering group, Keith A. Rinaldi has been with Dome-Tech since 1992. With over 14 years of experience, Keith has developed expertise in problem solving and the optimization of all major plant utility systems including boilers, steam distribution and condensate return systems, compressed air systems, chillers, cooling towers, pumps, chilled water distribution, air handlers and air distribution systems.

Keith was a key member of the team

which established and formalized Dome-Tech's retro-commissioning process. Retro-Commissioning is a systematic process of reviews, inspections and testing which ensures systems have been designed, installed and operate properly to efficiently meet the needs of the building's occupants. In the last five years he has been personally involved in and supervised retro-commissioning projects for over 3 million square feet of office, laboratory, production and school facilities.

In addition to retro-commissioning, Keith's project experience includes:

- The evaluation and optimization of countless steam and condensate systems in the tri-state area.
- The evaluation and optimization of numerous >3,000 ton central chilled water plants.
- Failure analysis of two engine driven chillers. Provided independent testing and analysis for litigation purposes.
- Owner's representative for the acceptance testing of a 100 MW cogeneration unit.
- Provided specialty TAB services for pharmaceutical and health care HVAC systems.

As the President of Field Engineering Services, Keith is ultimately responsible for the day-to-day operations and management of all field engineering projects. He is an integral part of the Dome-Tech Group's senior management team, developing the strategic direction of the company as a whole.

Time: 6:30 PM, Wednesday, October 18, 2006. A pre-meeting buffet will be available starting at 6:00 PM.

Place: Eaton Electrical (Cutler-Hammer), 690 Rahway Ave, Union, NJ. Directions: Route 82 Morris Avenue from either Springfield or Union to Rahway Ave.

Information: Ronald W. Quade, PE, (732) 205-2614 or rwquade "AT" ieee.org.

NJ Section PACE, GOLD:

ENGINEERS MEET: Your Business

On Wednesday, October 11, 2006 the North Jersey Section Professional Activities Committee and Graduates of the Last Decade will host a meeting to network, socialize, enjoy refreshments and discuss the professional side of engineering.

About the Meeting

All will have an opportunity to present their views about the profession, the job market, review past meetings and discuss pressing issues for PACE.

Bring job leads and information. And get on our Email list.

All Welcome

Members and students from other professional societies and engineering disciplines are always welcome. We now include members from IEEE, ASME and AEA. For more information about these groups see:

www.aea.org
www.ieeeusa.org
<http://web.njit.edu/~ieeenj/>
www.asme.org/sections/northjersey
<http://ewh.ieee.org/reg1/>

Time: 6:30 to 9:00 PM, Wednesday, October 11, 2006. Refreshments will be served.

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

Information: Paul Ward, (973) 790-1625 (PWard1130 "AT" aol.com) or Richard F. Tax, (201) 664-0803 (rftax "AT" verizon.net).

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IEEE NJ SECTION HOME PAGE

<http://web.njit.edu/~ieeenj/>

IEEE NJ SECTION NEWSLETTER HOME PAGE

<http://web.njit.edu/~ieeenj/NEWSLETTER.html>

REPORT ADDRESS CHANGES TO:

IEEE Service Center, 445 Hoes Lane, P.O. Box 1331, Piscataway, NJ 08855-1331, (732) 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.

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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 Seth Jakel at (973) 731 1902, [sgjakel "AT" comcast.net](mailto:sgjakel@at.comcast.net).

NJ Control Systems Chapter: iSpace - a Large Scale Mechatronics System for Real-Time System- wise Optimal Control

On October 20, 2006, the IEEE North Jersey Section Control Systems Chapter will host a presentation titled "iSpace - a Large Scale Mechatronics System for Real-Time System-wise Optimal Control." The speaker will be Professor Mo-Yuen Chow.

About the Talk

This presentation describes a novel concept iSpace (Intelligent Space), which is a large scale Mechatronics System, for real-time system-wise optimal performance using distributed sensors, distributed actuators, and distributed controllers. The space under consideration can be a physical space such as manufacturing plants, hospitals, offices, universities, or a virtual space linked by communication networks (e.g., Internet) to fuse a manufacturing plant operation in Germany with the supervisory controller in US. The seminar will described several challenges including the real-time integration of distributed sensors information, distributed controller coordinators, and collaborative distributed actuators control, and opportunities such as global manufacturing, intelligent healthcare facilities. An unmanned ground vehicle path tracking in iSpace at North Carolina State University will be used to facilitate the discussions of iSpace concept. Network time delay compensation using Gain Scheduling Middleware and real-time Edge detection and Harmonic Potential Field for path-planning and goal seeking in iSpace will be addressed.

About the Speaker

Mo-Yuen Chow earned his degree in Electrical and Computer Engineering from the University of Wisconsin-Madison (BS, 1982); and Cornell University (M. Eng., 1983; PhD, 1987). Upon completion of his PhD degree, Dr. Chow joined the Department of Electrical and Computer Engineering at North Carolina State University as an Assistant Professor. He became an Associate Professor in 1993, and a Professor since 1999. He worked in U.S. Army, TACOM/TARDEC Division as a Senior Research Scientist during the summer of 2003. He spent his sabbatical leave as a Visiting Scientist in 1995 in ABB Automated Distribution Division. Dr. Chow's core technology is mechatronics, control, diagnosis and computational intelligence. Dr. Chow has been applying his core technology to areas including motor systems, power distribution systems, network-based distributed

control systems, and unmanned vehicles. He has served as a Principal Investigator in several projects supported by the National Science Foundation, BD Technologies, Center for Advanced Computing and Communication, Nortel Company, Electric Power Research Institute, Duke Power Company, ABB Company, Electric Power Research Center, NASA, and Army. Dr. Chow has established the Advanced Diagnosis, Automation and Control Laboratory at NC State University. He has published one book, five book chapters, and over one hundred journal and conference articles related to his research work. He is the Vice President for Publication of IEEE Industrial Electronics Society, an Associate Editor for the IEEE Transactions on Industrial Electronics. He is the General Chair of IEEE IECON05. Dr. Chow served as a guest editor for the IEEE Transactions on Industrial Electronics Special Issue on Distributed Network-Based Control Systems and Applications in 2003, for the Special Issue on Motor Fault Detection and Diagnosis (Vol. 47, no. 5, 2000), and for the Special Issue on Application of Intelligent Systems to Industrial Electronics (Vol. 40, no.2, 1993). He has received the IEEE Eastern North Carolina Section Outstanding Engineering Educator Award, and the IEEE Region 3 Joseph M. Biedenbach Outstanding Engineering Educator Award.

Time: 11:30 AM - 12:30 PM, Friday, October 20, 2006.

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: Professor Timothy Chang (973) 596-3519 ([changtn "AT" njit.edu](mailto:changtn@at.njit.edu)) or Professor Mengchu Zhou (973) 596-6282.

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IEEE North Jersey Section Activities

September 2006

Oct. 4 – “NJ Section Meeting”, 6:30 PM, “Executive Committee Meeting” - 7:00 PM, ITT, 100 Kingsland Rd, Clifton, NJ. Seth Jakel at [sgjakel “AT” comcast.net](mailto:sgjakel@comcast.net).

Oct. 5 – “2006 MTT/AP Symposium and Mini-Show” – MTT-S/AP-S Chapter, 9:30 AM - 4:30 PM, Birchwood Manor, 111 N. Jefferson Road, Whippany, NJ. Kirit Dixit (201) 669-7599 ([kdixit “AT” ieee.org](mailto:kdixit@ieee.org)), Art Greenberg (973) 386-6673 ([ahg1 “AT” lucent.com](mailto:ahg1@lucent.com)), Har Dayal (973) 633-4618 ([har.dayal “AT” baesystems.com](mailto:har.dayal@baesystems.com)), or George Kannell (973) 386-4170 ([gkk “AT” lucent.com](mailto:gkk@lucent.com)).

Oct. 10 – “Digital Image Forensics” by Dr. Yun Q. Shi, NJ SP Chapter, 4:45 PM (buffet at 4:30 PM), New Jersey Institute of Technology (NJIT), Room 202, ECE Center, Newark, NJ. Dr. Yun Shi (973) 596-3501 ([shi “AT” njit.edu](mailto:shi@njit.edu)), Dr. Alfredo Tan (201) 692-2347 ([tan “AT” mailbox.fdu.edu](mailto:tan@fdu.edu)), Dr. Hong Man (201) 216-5038 ([hman “AT” stevens-tech.edu](mailto:hman@stevens-tech.edu)).

Oct. 11 – “Engineers Meet: Your Business” - NJ PACE & GOLD, 6:30 – 9:00 PM, Clifton Memorial Library, 292 Piaget Ave, Clifton, NJ. Paul Ward, (973) 790-1625 ([PWard1130 “AT” aol.com](mailto:PWard1130@aol.com)) or Richard F. Tax, (201) 664-6954 ([rtax “AT” verizon.net](mailto:rtax@verizon.net)).

Oct. 11 – “Studying Brain Connectivity with Multimodal NeuroImaging for Better Understanding Neural Networks of Human Cognitive Process” by Dr. Zhishun Wang, NJ SP Chapter, 4:45 PM (buffet at 4:30 PM), New Jersey Institute of Technology (NJIT), Room 202, ECE Center, Newark, NJ. Dr. Yun Shi (973) 596-3501 ([shi “AT” njit.edu](mailto:shi@njit.edu)), Dr. Alfredo Tan (201) 692-2347 ([tan “AT” mailbox.fdu.edu](mailto:tan@fdu.edu)), Dr. Hong Man (201) 216-5038 ([hman “AT” stevens-tech.edu](mailto:hman@stevens-tech.edu)).

Oct. 17 – “Chip-Package Co-Design of RF Microsystems” by Professor P.R. Mukund, NJ EDS/C&S Chapters, 7:00 PM (buffet at 6:15 PM), New Jersey Institute of Technology (NJIT), Room 202, ECE Center, Newark, NJ. Dr. Richard Snyder (973) 492-1207 (RS Microwave), Dr. Edip Niver (973) 596-3542 (NJIT), or Dr. Durga Misra (973) 596-5739 ([dmisra “AT” njit.edu](mailto:dmisra@njit.edu)).

Oct. 17-Dec. 5 – “Project Management” by Dr. Donald Hsu, North Jersey Section, Tuesday Evenings, 8 sessions, 6:30-9:00 PM, NJ International Bulk Mail Center, 80 County Rd, Jersey City, NJ. Donald Hsu ([yanyou “AT” hotmail.com](mailto:yanyou@hotmail.com)).

Oct. 18 – “Energy Conservation Series - Retro-Commissioning” by Keith Rinaldi, PE, NJ IAS/PES Chapters, 6:30 PM, Eaton Electrical (Cutler-Hammer), 690 Rahway Ave, Union, NJ. Ronald W. Quade, PE, (732) 205-2614 or [rwquade “AT” ieee.org](mailto:rwquade@ieee.org).

Oct. 20 – “iSpace - a Large Scale Mechatronics System for Real-Time System-wise Optimal Control” by Professor Mo-Yuen Chow, NJ Control Systems Chapter, 5:00-6:00 PM, New Jersey Institute of Technology (NJIT), Room 202, ECE Center, Newark, NJ. Professor Timothy Chang (973) 596-3519 ([changtn “AT” njit.edu](mailto:changtn@njit.edu)).

Oct. 26 – “All You Wanted to Know About Reliability Engineering!” by Dan Kamdar, NJ Consultants' Network, 7:30 PM, Aeroflex/KDI-Integrated Products, 60 S. Jefferson Rd, Whippany, NJ. Robert Walker (973) 728-0344 or www.TechnologyOnTap.org.

Oct. 26 – “Advances in Embedded Micro-Controllers & Design” by John Magrane, NJ SMC Society, 7:00 PM (light refreshments at 6:45 PM), NJIT, 202 ECE Center, Newark, NJ. Dr. Mike Liechenstein, (973) 471-0721, ([m.liechenstein “AT” ieee.org](mailto:m.liechenstein@ieee.org)), or Mengchu Zhou ([mengchu.zhou “AT” njit.edu](mailto:mengchu.zhou@njit.edu)).

Oct. 27 – “National Electrical Code Seminar” by Won Kim, NJ PES/IAS, 9:00 AM - 12:45 PM, Jersey Central Power & Light Company, 300 Madison Avenue, Morristown, NJ 07962. Ronald W. Quade (732) 205-2614 or [RWQuade “AT” IEEE.org](mailto:RWQuade@IEEE.org).

Upcoming Meetings

Nov. 1 – “NJ Section Meeting”, 6:30 PM, “Executive Committee Meeting” - 7:00 PM, ITT, 100 Kingsland Rd, Clifton, NJ. Seth Jakel at [sgjakel “AT” comcast.net](mailto:sgjakel@comcast.net).

Nov. 2– “Life Grade Luncheon” - 11:30 AM, Hamilton Park Conference Center, 175 Park Ave, Florham Park, NJ. Ken Oexle (973) 386-1156.

Nov. 8 – “Theory and Applications of SEM/FIB DualBeam Instrumentation” by Dr. Lucille A. Giannuzzi, EDS/C&S Chapters, 7:00 PM (buffet at 6:15 PM), New Jersey Institute of Technology (NJIT), Room 202, ECE Center, Newark, NJ. Dr. Richard Snyder (973) 492-1207 (RS Microwave), Dr. Edip Niver (973) 596-3542 (NJIT), or Dr. Durga Misra (973) 596-5739 ([dmisra “AT” njit.edu](mailto:dmisra@njit.edu)).

Nov. 15 – “Course - Navigation: Land, Sea, Air and Space” - AES Chapter, 9:00 AM – 4:30 PM, -3Com Space and Navigation, 450 Clark Drive, Budd Lake, NJ, 07828, (973) 446-4000, www.L-3Com.com/Spacnav. Dr. Naresh Chand, (973) 636-7408, [naresh.chand “AT” baesystems.com](mailto:naresh.chand@baesystems.com).

Dec. 18-21 – “9th International Conference on Information Technology (CIT 2006)”, see <http://www.citconference.org> and <http://www.cs.unt.edu/~smohanty/CIT2006>.

Members and Non-Members Welcome
PLEASE POST

NJ EDS/C&S Chapters:
**Chip-Package Co-
Design of RF
Microsystems**

On October 17, 2006, the IEEE NJ Section Electron Devices, Circuits and Systems Chapters together with the New Jersey Institute of Technology will host a talk on "Chip-Package Co-Design of RF Microsystems." The speaker will be Professor P.R. Mukund.

About the Talk

The design of systems that contain both RF circuitry and digital circuitry, either in a single integrated circuit or a single package, poses challenges that are difficult to overcome with traditional design tools. For an efficient design methodology, it is imperative that an early design component be incorporated into the design cycle. Further, the chip and the package have to be designed concurrently. In this talk, a chip package co-design methodology and a resultant software tool will be presented. This research was sponsored by the National Science Foundation and the Semiconductor Corporation. In addition, related topics of built-in self test and self calibration of RF I.C.s will also be discussed.

About the Speaker

Professor P.R. Mukund is the Director of the RF, Analog and Mixed-signal Laboratory (RAMLAB) at R.I.T. In this capacity, he is the principal investigator of five research projects, sponsored by both industry and government agencies. He is currently supervising the research of five PhD students, whose work is based on close interaction with companies such as LSI Logic, Freescale Semiconductors, National Semiconductors and Kawasaki LSI. Dr. Mukund has a BSEE, MS and PhD degrees in electrical engineering from the University of Tennessee and has seven years of industrial experience, in addition to seventeen years of academic experience. He has co-edited IEEE Computer, chaired several IEEE international conferences and is currently on the Steering Committee of the IEEE International SoC Conference. He has published in the area of analog and RF integrated circuit design, in refereed forums.

All Welcome!

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

Time: 7:00 PM, Tuesday, October 17, 2006. Free buffet will be starting at 6:15 PM.

Place: New Jersey Institute of Technology (NJIT), Room 202, ECE

Center, Newark, NJ. Directions are available at <http://www.njit.edu>.

Information: Dr. Richard Snyder (973) 492-1207 (RS Microwave), Dr. Edip Niver (973) 596-3542 (NJIT), or Dr. Durga Misra (973) 596-5739 (dmisra "AT" njit.edu).

NJ EDS/C&S Chapters:

**Theory and
Applications of
SEM/FIB DualBeam
Instrumentation**

On November 8, 2006, the IEEE NJ Section Electron Devices, Circuits and Systems Chapters together with the New Jersey Institute of Technology will host a talk on "Theory and Applications of SEM/FIB DualBeam Instrumentation." The speaker will be Dr. Lucille A. Giannuzzi.

About the Talk

The basic concepts of ion-solid interactions and focused ion beam (FIB) instrumentation and theory will be presented. Examples of basic FIB milling and the uses of gases for chemical vapor deposition and gas enhanced etching will be given. The first uses of FIB in the semiconductor industry for device modification and circuit repair have extending into many applications, materials research, and industrial markets. The applications of FIB and DualBeam usage on multiple material systems in numerous industries have been realized, and examples of FIB milling for many material systems will be shown. Uses of the DualBeam platform for nanotechnology applications will be described, showing that the utilization of such a tool is limited only by one's imagination. FIB milling techniques for specimen preparation for scanning electron microscopy (SEM), transmission electron microscopy (TEM), and other analytical tools will be presented. In particular, the ex-situ lift-out and in-situ lift-out TEM techniques will be presented in detail, and the applications of these specimen preparation methods for many TEM and Scanning TEM techniques will be emphasized. The concepts and advantages of a dual platform FIB and scanning electron microscope (SEM) will be discussed. In particular, the development of the combined FIB/SEM DualBeam instrumentation as a nano-lab and a 3D characterization tool which including microstructure, elemental composition, and crystallographic information will be given. Examples of using the DualBeam as a 30 keV

scanning transmission electron microscope will also be presented.

About the Speaker

Lucille A. Giannuzzi received her BE and MS Degrees from SUNY Stony Brook, and her PhD Degree from The Pennsylvania State University. She spent ten years at the University of Central Florida where she was the recipient of an NSF Career Award. As Professor of Mechanical Materials & Aerospace Engineering, her primary research interests included ion/solid interactions and the microstructural evaluation of materials using focused ion beams and transmission electron microscopy. She has been with FEI Company as a field product marketing engineer for FIB/DualBeam systems for the past three years. She is on the editorial board of the journal, Microscopy and Microanalysis and participates as an instructor in the Lehigh Microscopy School. She is active in the local and national chapters of AVS, MSA and MAS. She has been a local affiliate speaker for both MSA and the MAS and is co-editor of a book entitled, "Introduction to Focused Ion Beams."

All Welcome!

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

Time: 7:00 PM, Wednesday, November 8, 2006. Free buffet will be starting at 6:15 PM.

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

Information: Dr. Richard Snyder (973) 492-1207 (RS Microwave), Dr. Edip Niver (973) 596-3542 (NJIT), or Dr. Durga Misra (973) 596-5739 (dmisra "AT" njit.edu).

**Interested in Being a
North Jersey Section
Officer?**

The North Jersey Section Nominating Committee will soon begin to consider candidates for section officers for next year. We request that those who are interested in a section office submit their name, office sought, and qualifications to the Committee Chair, Dr. Fred Chichester, by mail at

56 Gordonhurst Ave
Upper Montclair, NJ 07043

For further information, you may telephone him at (973) 744-7340 between the hours of 8:00 AM and 9:00 PM.

NJ SP Chapter:

Digital Image Forensics

On October 10, 2006, the IEEE North Jersey Section Signal Processing Society along with NJIT will host a seminar on "Digital Image Forensics." The speaker will be Dr. Yun Q. Shi.

About the Talk

In our digital age, digital media have been being massively produced, easily manipulated, and swiftly transmitted almost anywhere and anytime. Digital data forensics, which gathers evidence of data composition, origin, and history, is called for information assurance. In this talk we discuss three subjects in forensics. First, we report a newly developed method to detect spliced images, in which statistical moments of characteristic functions derived from image magnitude and phase congruency derived from image phase are utilized for image tampering detection. We then briefly present a Markov process based steganalytic scheme, which can effectively detect existence of data embedded by modern steganography, in particular, OutGuess, F5 and MB. Finally, we show a generalized Benford law, which can be used to detect JPEG compression history for bmp images.

About the Speaker

Dr. Yun Q. Shi has been a member of the Department of Electrical and Computer Engineering at New Jersey Institute of technology since Fall 1987. His research interests include visual signal processing and communications, digital multimedia data hiding and information assurance, applications of digital image processing, computer vision and pattern recognition to industrial automation and biomedical engineering, theory of multidimensional systems and signal processing. He is an author/coauthor of 190 papers in his research areas, a book on Image and Video Compression, three book chapters on Image Data Hiding and one book chapter on Digital Image Processing. He holds two US patents and has 17 US patents pending. Dr. Shi is currently the Technical Chair of IWDW06 and ICME07, and a Fellow of IEEE.

Time: 4:45 PM (refreshments and pizza available at 4:30 PM), Tuesday, October 10, 2006.

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. Yun Shi (973) 596-3501 (shi "AT" njit.edu), Dr. Alfredo Tan (201) 692-2347 (tan "AT" mailbox.fdu.edu), Dr. Hong Man (201) 216-5038 (hman "AT" stevens-tech.edu).

North Jersey SMC Society:

Advances in Embedded Micro-Controllers & Design

On Thursday, October 26, 2006, the NJ Systems, Man & Cybernetics (SMC) Chapter will be hosting a seminar at NJIT on state-of-the-art microchip controllers and key design considerations. John Magrane, Technical Training Manager Americas for Microchip Technology, Inc., will be the presenter.

About the Talk

The focus of the presentation will be on Microchip's new series of 16 bit microcontrollers and digital signal controllers.

About the Speaker

John Magrane is the Technical Training Manager for the Americas with extensive experience in the programming and application of embedded microchip controllers. He began his career with Microchip Technology as a Field Applications Engineer often serving as a trainer for Microchip Technology's existing and prospective clients. Currently he manages the company's customer training program for North and South America through a series of Regional Training Centers. He graduated from Rensselaer Polytechnic Institute with a BS in Physics and a minor in Electrical Engineering and Management. In the course of his career, Mr. Magrane performed hardware and software design at Raytheon and LORAL.

All Welcome!

You need not be a member of IEEE to attend, and there is no charge for admission. Light refreshments will be served starting at 6:45 PM.

Time: 7:00 PM (light refreshments at 6:45 PM), Thursday, October 26, 2006.

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

Information/RSVP: Dr. Mike Liechenstein, (973) 471-0721, (m.liechenstein "AT" ieee.org), or Mengchu Zhou (mengchu.zhou "AT" njit.edu).

Please RSVP prior to the presentation since space is limited, as well as for getting instructions for accessing the secured parking deck at NJIT. Also check electronic newsletter for any possible changes in room, etc.

NJ Consultants' Network:

All You Wanted to Know About Reliability Engineering!

On Thursday, October 26, 2006, the IEEE Consultants' Network of Northern NJ is pleased to present "All You Wanted to Know About Reliability Engineering!", by Dan Kamdar.

About the Talk

CNNNJ is pleased to present a technical presentation about reliability & maintainability engineering, systems safety, and logistics. The Discussion will describe various terms, such as MTBF & MTTR, Parts Stress Analysis, screening to enhance MTBF, Failure Modes Effect and Criticality Analysis (FMECA), software reliability, associated standards, HALT/HASS accelerated testing for earlier identification of failures, three levels of maintenance concept, BIT analysis and demonstration, safety risks and mitigations, Hazard Analysis, and logistics supportability and management. Software tools for performing these analyses will also be described.

About the Speaker

Dan Kamdar is the President and CEO of Affordable Engineering Services, LLC, a one-stop multi-disciplined engineering company. He has an MBA, MSEE, BSEE and BSME degrees. His company provides consulting services in reliability, maintainability, test, circuit design/analysis, quality assurance, logistics and component engineering. He has extensive background in aerospace and defense systems, such as fighter and transport aircrafts, rockets, missiles, space station and helicopters.

Dan can be reached at (973) 890-8915 or by email at [dkamdar "AT" affordservices.com](mailto:dkamdar@affordservices.com); Affordable Engineering Services' web site is <http://www.affordservices.com>.

About the Consultants' Network

Founded in 1992, the IEEE Consultants Network of Northern NJ encourages and promotes the use of independent technical consultants by business and industry.

All Welcome!

Everyone welcome. No registration needed. Free admission.

Time: 7:30 PM, Thurs., Oct. 26, 2006.

Place: Aeroflex/KDI-Integrated Products, 60 S. Jefferson Rd, Whippany, NJ. (Entrance at rear of building).

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.mckedi-integrated.com/directions.htm>.

NJ SP Chapter:

Studying Brain Connectivity with Multimodal NeuroImaging for Better Understanding Neural Networks of Human Cognitive Process

On October 11, 2006, the IEEE North Jersey Section Signal Processing Society along with NJIT will host a seminar on "Studying Brain Connectivity with Multimodal NeuroImaging for Better Understanding Neural Networks of Human Cognitive Process." The speaker will be Dr. Zhishun Wang.

About the Talk

Distributed networks (connections among different regions) of the brain govern human behavior. It becomes increasingly clear that such connections can be non-invasively detected by using functional magnetic resonance imaging (functional MRI or fMRI). As a powerful tool of non-invasive brain mapping, fMRI has evolved in various domains into a methodology for addressing questions with regard to functional topography, for testing hypothesis about functions of brain structures and networks, and for elucidating the underlying neurophysiological mechanisms. Some have started to explore the potential of fMRI measures as endophenotype markers for psychopathological disorders. A common objective in functional imaging is to characterize the activity in a particular brain region in terms of the interactions among inputs from other regions or by the interaction between inputs from another region's activity and a behavior state. The analysis of fMRI time-series data recorded from human brain can provide information not only about task-related activity, but also about the connectivity (functional or effective) among brain regions and the influences of behavioral or physiologic states on that connectivity. One of the exciting possible applications of such an analysis is that researchers could use the information based on the functional connectivity extracted from fMRI data primarily to make inferences about human cognitive process.

During this presentation, Dr. Wang will extensively introduce his works in studying brain connectivity with Multimodal (Multimodality) NeuroImaging techniques, including fMRI, Diffusion Tensor Imaging (DTI), Magnetic

Resonance Spectroscopy (MRS), EEG, Optical Imaging and their combinations. Dr. Wang has developed two neural network models, Generalized Minimum Fuel Neural Networks (GMFNN) and Constrained Least Absolute Deviation Neural Networks (CLADNN) that are suitable for the robust analysis of functional connectivity from fMRI time series. Dr. Wang has proposed a novel clustering method, called Partner Matching (PM) for automatically identifying independent components that represent neuronal and non-neuronal sources and are generated by applying an ICA algorithm to fMRI datasets. By using PM algorithm and combining fMRI with DTI-based fiber tracking, as the first time with a non-invasive method, Dr. Wang and his group have successfully revealed and reconstructed the spatial-temporal pattern of functional and anatomical connectivity in the motor cortex, which had a great agreement with the accepted neuronal circuitry of motor cortex detected previously by using invasive electrophysiological methods. In this talk, Dr. Wang will also introduce his works in applying nonlinear theory and methods to neuroimaging data, for example, nonlinear numerical feature extractions (Lyapunov exponents, fractal dimensions, approximate entropy) of Amygdala and Hippocampus. They have found that normal children and the children with psychiatric disorders (ADHD) differ in fractal dimensions of Amygdala and Hippocampus.

About the Speaker

Dr. Zhishun Wang graduated from Southeast University and obtained his PhD degree in 1997, as one of the students of Distinguished Doctoral Advisor, Prof. Zhenya He. Dr. Wang's PhD thesis was granted "Excellent PhD Thesis Award in Year 2000" by the Academic Committee of the State Council of China (only 100 of 45,000 PhD candidates all over the country won this award in that year).

Dr. Wang is currently an Assistant Professor of Clinical Psychiatry with Brain imaging Center of Columbia University in New York City. Prof. Wang is also a Senior research Scientist with New York State Psychiatry Institute. Dr. Wang has been extensively working on brain imaging and its application to the research of cognitive process of human brains with an emphasis on signal processing of functional magnetic resonance imaging (fMRI). Dr. Wang has published over 100 journal and conference papers (9 IEEE regular papers), won numerous Young Investigator Awards and received federal funding to support his research from National Institute of Health (NIH).

Dr. Wang is now a Senior Member of IEEE and he has been recognized as an Outstanding Scientist by Whos' Whos in America.

Time: 4:45 PM (refreshments available at 4:30 PM), Wednesday, October 11, 2006.

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. Yun Shi (973) 596-3501 (shi "AT" njit.edu), Dr. Alfredo Tan (201) 692-2347 (tan "AT" mailbox.fdu.edu), Dr. Hong Man (201) 216-5038 (hman "AT" stevens-tech.edu).

IAS Chapter Recognition

The North Jersey IAS Chapter has been selected to receive the IEEE Industry Application Society's 2005 Outstanding Large Chapter Award.

The award recognizes the chapter's diversified program of activities including technical meetings, seminars and lecture series addressing the technical needs of IAS members, life grade members, students and graduates of the last decade (GOLD). Selection criteria for the award considered the number of activities, program content and member attendance.

The official recognition and presentation of the Award will occur at the IAS General Meeting in October 2006. Ken Oexle serves as Chair of the IAS Chapter and Won Kim serves as Vice Chair.

NJ AES Chapter:

Navigation: Land, Sea, Air and Space

On Wednesday, November 15, 2006, the IEEE NJ Section of Aerospace, Electronics and Systems (AES) Technical Society together with the L-3Com will host a short course on Navigation: Land, Sea, Air and Space. The instructor is Dr. Myron Kayton.

About the Course

The course will include: Overview of navigation, Coordinate Frames, Absolute navigation versus dead reckoning, Guidance versus navigation, Tailoring navigation to the vehicle, Terrestrial radio systems, GPS and DGPS, timing, Dead reckoning, compass, gyroscopes and accelerometers, gimbal sets, strap-down configurations, sensor processing, Cell-phone positioning, Spacecraft navigation, coasting flight, powered flight, land navigation, Testing, Calibration, initialization, and alignment, Cost and accuracy, Animal navigation, Future trends, Bibliography: books, journals, and web sites.

About the Instructor

Dr. Myron Kayton has 50 years of experience designing and testing avionic, navigation, communication and computer-automation systems. He is a Consulting Engineer for his own company. From 1968 to 1981, he was a member of the senior staff at TRW where he served as Chief Engineer for Spacelab avionics and head of System Engineering for Space Shuttle avionics among scores of assignments. From 1965 to 1969, he served as Deputy Manager for Lunar Module Guidance and Control at NASA's Johnson Space Center. From 1960 to 1965, he was Section Head at Litton's Guidance and Control Division where he designed and analyzed some of the earliest multi-sensor navigation systems, for example the SRAM cruise missile. Dr. Kayton is a Life Fellow of the IEEE, served on its Board of Directors and as President of the Aerospace and Electronic Systems Society, and received numerous awards and honors. He is an AESS Distinguished Lecturer, has taught at UCLA and published more than 80 papers; two books, Avionics Navigation Systems (two editions); Navigation: Land, Sea, Air and Space; and several handbook chapters.

All Welcome!

All are welcome but seats are limited (first come-first served)! You do not have to be IEEE member to attend the course. Early registration, latest by October 31, is required to help L-3Com for security review and allowing you access to their building.

Cost: \$10 for IEEE-AES members, unemployed and students. \$25 for all others. You are welcome to join AES Society and pay the reduced rate.

Time: 9:00 AM – 4:30 PM, Wednesday, November 15, 2006. Refreshments will be provided.

Place: L-3Com Space and Navigation, 450 Clark Drive, Budd Lake, NJ, 07828, (973) 446-4000, www.L-3Com.com/Spaconav.

Information: Dr. Naresh Chand, (973) 636-7408, naresh.chand@baesystems.com.

REGISTRATION: Navigation: Land, Sea, Air and Space by Myron Kayton

Please mail the completed registration form with the check (payable to "North Jersey Section IEEE") to: **Dr. Naresh Chand, BAE SYSTEMS, M/S 100A2, 164 Totowa Road, Wayne, NJ 07474**

Name: Dr. / Mr./ Mrs./ Miss / Ms./ _____

Email address: _____

Telephone # Business: _____ Home: _____

Member of IEEE-AES Technical Society: Yes No

If no, do you want to join AES Technical Society: Yes

IEEE Member Member #: _____

Member of _____ technical society

Employer: _____

Employer address: _____

Home Address: _____

Please enclose required fee payable to: North Jersey Section IEEE

As soon as a fully completed registration form and the payment are received, you are officially registered for this course. Registration status will be mailed through email.

Tuition receipt will be mailed only if this box is checked

I wish to receive IEEE Completion Certificate

Signature: _____



LISAT2007

Third Annual IEEE Long Island Systems, Applications and Technology Conference

Friday, May 4, 2007

Institute for Research & Technology Transfer, Farmingdale State University
Farmingdale, NY

CALL FOR PAPERS AND EXHIBITORS

Last year's successful conference featured contributed papers that were presented in three parallel sessions: Systems, Applications, and Technology. Technical papers describing research development and application on a broad range of electronic and electrical engineering topics are solicited for LISAT2007.

All paper submissions must include title and a 300 to 500 word summary, the speaker(s) full name, affiliation, address, phone number and email address and a 1/3 page long biography. Submissions should be emailed to the LISAT Technical Program Co-Chairmen, Dave Mesecher at d.mesecher@ieee.org and Daniel Rogers at drogers@ieee.org, as well as Jesse Taub, Technical Program Consultant, at jjtaub@aol.com. Papers will be accepted based on their originality, quantitative content, clarity, and interest to IEEE members.

The deadline for paper submissions is December 1, 2006. You will be notified of acceptance or rejection on or before January 10, 2007 and will be given instructions for electronic submission of your full paper which is due by February 15, 2007. One author of each paper must register for the Conference and will be expected to provide a 40 minute PowerPoint presentation at the conference followed by 10 minutes of Q&A. Presented papers will be part of the CD-ROM Conference Proceedings to be given to each attendee and will become part of the IEEE Xplore database.

While LISAT welcomes a wide variety of papers in systems, applications and technology, some examples of topics of particular interest are:

Homeland Defense, Satellite Communications, Mobile Communications, RF ID Tag Technology, Microwave Technology, Electromagnetic Compatibility, Mobile Ad Hoc Networking, Multi-level Network Security, Sensor Fusion, New Electrical Power Sources, Antenna Systems and Processing, Radio Locationing, Radar Systems and Techniques, and Medical Electronics

Releases and Approvals: This conference will be unclassified and attended by both US and non-US persons. It is the author's responsibility to obtain all required company and government releases and approvals prior to making a paper submission. A statement that such releases and approvals have been obtained as well as a completed IEEE copyright form (signed by the submitting author) must accompany the final manuscript of each accepted paper.

For information on Exhibiting at LISAT, please contact: Fred Kruger at f.m.kruger@ieee.org or Mark Sadick at mark@sagharborind.com and/or Tel: 516-967-2970

For all other information contact LISAT2007 Conference Chair: Dr. Charles Rubenstein at c.rubenstein@ieee.org or Conference Vice Chair: Dr. Babak Beheshti at b.beheshti@ieee.org

LISAT is sponsored by the IEEE Long Island Section and its Technical Society Chapters, and IEEE Region 1 in cooperation with the Institute for Research & Technology Transfer (IRTT) at Farmingdale State University

IEEE North Jersey Section Course Project Management

Tuesday Evenings, October 17, 2006 through December 5, 2006
Eight weekly classes (October 17, 24, 31, November 7, 14, 21, 28, December 5, 2006)
USPS, NJ International Bulk Mail Center, 80 County Road, Jersey City, NJ 07097
(Checks should not be mailed to this address)

IEEE North Jersey Section appreciates USPS, BMC for sponsoring these courses at their site

The North Jersey Section IEEE is offering an evening course entitled "Project Management". Dice.com lists 3800+ Project related jobs in the New York tri-state area daily! This course will help you to break down a master project into manageable tasks, pinpoint possible solutions, and provide information to keep the project under control. Using *Microsoft Project 2003* software, you will learn to accomplish various project plans. In addition, it will greatly enhance your business, communications and interpersonal skills.

You will receive the IEEE certificate of completion when you finish the course. You may wish to take two Certification exams, one in *Project Management* administered by Project Management Institute and the other in *IT Project+* by CompTIA Inc from the knowledge you learned in this course. (This is *not an exclusive PMP-PMI examination prep course*. No PDUs are issued for PMP eligibility. CEU credits would be given by IEEE).

Instructor: **Donald Hsu, PhD**, has been a corporate manager for 11 years and is an experienced trainer. Since 1999, he has trained 400+ people in IT Project+, MS Project 2003, and Project Management courses in eight organizations.

TOPICS

1. Explain the need for a project manager
2. Define SOW, PERT, GANTT, CPM, and Scope of the project
3. Identify the team members, resources and plan for the strategy
4. Calculate schedule, budget variances, and monitor project progress
5. Manage changes, estimates, and communications
6. Set a baseline, import tasks from MS Excel, export Project files to MS Word
7. Create and modify custom reports, templates and combination views
8. Share resources and create a master plan loaded to Project Server
9. Approve updates and conclude a project plan
10. Analyze global E-Commerce and present student Projects

WHERE: NJ International Bulk Mail Center, Jersey City, NJ. (Checks **should not** be mailed to this address)

WHEN: 8 Tuesdays, October 17, 24, 31, November 7, 14, 21, 28, December 5, 2006, 6:30-9:00 PM.

COST: IEEE (& affiliate) members \$400; Non-IEEE members \$480.

CONTACT: Donald Hsu: yanyou "AT" hotmail.com

REGISTRATION: Project Management

Please mail the registration form with the check (**Checks payable to "North Jersey Section IEEE"**) to **Donald Hsu, Co-Chair, Education Committee, IEEE North Jersey Section, PO Box 2093, Fort Lee, NJ 07024.**

Name: _____ Email address _____

Non-member

IEEE Member Member #: _____ Member of _____ technical society

Employer: _____

Employer Address: _____

Home Address: _____

Business (day) telephone #: _____ Home telephone #: _____

Please enclose required fee payable to: **North Jersey Section IEEE**

As soon as a completed registration form and the payment are received, you are officially registered for this course. Registration status will be emailed after October 10, 2006

I wish to receive the IEEE Completion Certificate

Tuition receipt will be issued only if this box is checked

Signature: _____

NJ Power Engineering Society/Industry Applications Society

National Electric Code Seminar

The PES and IAS Chapters will sponsor a one-day seminar providing an overview and discussion of recent changes incorporated in the 2005 National Electrical Code (NEC). The session will be held on Friday, October 27th, from 9:00 AM – 12:45 PM, in the Punch Bowl Room at Jersey Central Power and Light, 300 Madison Ave, Morristown, NJ. The instructor will be Won Kim, PE. Participants are encouraged to bring their NEC book to the seminar. It can be ordered at www.NFPACatalog.org (request the current NEC 2005 edition).

About the Seminar

The National Electrical Code is revised every three years by National Fire Protection Association as NFPA 70, and is adopted by most of the States as the State's Electrical Code. The purpose of the Code is the practical safeguarding of persons and property from hazards arising from the use of electricity. The seminar will cover the major changes in the code, and the topics will include the following:

- ✓ Relationship to Uniform Construction Code of New Jersey and Electrical Safety Code(NESC) published by IEEE.
- ✓ Enforcement of the Code by the Department of Community Affairs (DCA) and the municipalities.
- ✓ Relationship between electrical engineers/designers, electrical contractors and electrical inspectors.
- ✓ Wiring methods, materials and protection.
- ✓ Equipment for general use.
- ✓ Special occupancies and conditions
- ✓ Communications Systems

The registration fee for this seminar will be \$100 (non-members), \$75 (IEEE members), \$50 IEEE GOLD (Graduates of the Last Decade) Members, \$25 Student Members and the fee will be waived for Life Members. All Registrations after October 12 must include an additional late fee of \$25. IEEE Continuing Education Units will be available at the seminar for an additional charge.

Time: 9:00 AM – 12:45 PM, Friday, October 27, 2006.
Place: Punch Bowl Room at Jersey Central Power and Light, 300 Madison Ave, Morristown, NJ.
Directions: Route 287 to Route 124 (Madison Ave exit). Head toward Madison. Jersey Central building is on the left about 1.5 miles from the exit.
Information: Ken Oexle, (973) 386-1156

Registration: National Electric Code Seminar 10/27/2006

Register via US mail to: Kenneth Oexle
11 Deerfield Rd
Whippany, NJ 07981

Name _____

Address _____

Phone _____ Email _____

IEEE # _____ Student @ _____ Non IEEE _____ Life Member _____

Continuing Education Units: _____ Yes _____ No

Payment Enclosed \$ _____ Add \$25 late registration after October 12, 2006

Make checks payable to North Jersey Section IEEE

Life Grade Luncheon

The PES Chapter and the Section will sponsor a luncheon for North Jersey IEEE Life Grades (Members, Senior Members and Fellows) on Thursday, November 2, at the Hamilton Park Conference Center, 175 Park Avenue, Florham Park, NJ 07932. The luncheon will begin at 11:30 AM in the Terrace area. Cost is \$5.00 per person.

Advance registration is required prior to October 24. We can accommodate only 30 people. Registrations will be processed in the order of receipt and will be confirmed by return mail. Please complete the following registration form and include a check Payable to the North Jersey Section IEEE in the amount of \$5.00 per person.

Reservations cannot be accepted at the door. For additional information contact Ken Oexle 973-386-1156.

IEEE Life Grade Luncheon Registration NJ - Nov 2, 2006

Name _____

Address _____

Phone _____

IEEE # _____ Life Grade ____ Yes

Return to: Ken Oexle
11 Deerfield Rd
Whippany, NJ 07981

Prior to October 24 and enclose \$5.00 Check payable to **NJ Section IEEE**

THE INSTITUTE OF ELECTRICAL AND ELECTRONIC ENGINEERS, INC.



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



PRESENT

21st ANNUAL SYMPOSIUM AND MINI-SHOW



THURSDAY OCTOBER 5, 2006

Birchwood Manor, 111 N.Jefferson Road, Whippany, NJ 973-887-1414

The conference presents a series of 9 lectures describing the state of the art in Microwave, RF, Optical and Wireless, technologies by leaders in their respective fields.

MINI SHOW FEATURING LATEST PRODUCTS - (10:00 AM TO 4:30 PM)
&
PRESENTATION SCHEDULE (8:50AM TO 4:35PM)

Time	Topic	Speakers	Title	Affiliation
8:50	Opening Remarks	George Kannell	Tech. Chair IEEE MTT/AP NJ	Lucent Technologies
9:00-10:00	Future of Wireless Networks	Dr. George Rittenhouse	Vice President	Lucent Technologies
10:00	Refreshments and Mini-Show			
10:30-11:00	Nonlinear System Performance of Shared Amplifiers based on 3-Way	Dr. Carsten Metz	Member of Technical Staff	Lucent Technologies
11:00-11:30	Electrically small spherical antennas and the Chu limit	Dr. Howard Stuart	Member of Technical Staff	Lucent Technologies
11:30-12:00	Bias-induced memory effects in RF power amplifiers	Dr. Marc Franco	Advanced Products Development Leader	Linearizer Technology
12:00	Lunch			
1:00-1:30	GaN Wideband Linearizer	Dr. Allen Katz	Professor / President	The College of NJ / Linearizer Technology
1:30-2:00	Miniature Low Loss High Selectivity Microwave Planar Filters	David Bates	Chief Scientist	Dielectric Laboratories
2:00-2:30	Advanced Circuit Simulation Technology for RFIC Circuit Design Applications	Bill McGinn	Application Engineer	Ansoft Corporation
2:30	Refreshments and Mini-Show			
3:00-3:30	Non-Linear Distortions: Group Delay Variation, Amplitude Variation and Their Effect on PSK Signals	Dr. Jim Benjamin	Engineering Fellow	BAE Systems, CNIR
3:30-4:30	High Performance, DC coupled DAC Output Design Options & Methodologies	Michael Steffes	Distinguished Member of Technical Staff	Texas Instruments
4:30	Closing remarks	Kirit Dixit	Chair IEEE MTT/AP NJ	Microcom Sales

Registration is on-site. Details will be published in the October issue of the NORTH JERSEY IEEE NEWSLETTER and at <http://www-ec.njit.edu/~ieeenj/NEWSLETTER.html>

FOR FURTHER INFORMATION CONTACT: Kirit Dixit (201-669-7599), Har Dayal (973-633-4618), Willie Schmidt (973-492-0371) or George Kannell (973-386-4170)

ALL ARE WELCOME (IEEE Membership not required). REGISTRATION IS ON_SITE
THERE IS NO CHARGE TO ATTEND THE SYMPOSIUM OR SHOW.
FREE BREAKFAST / LUNCH INCLUDED FOR ALL.

MTT/AP Chapter:
Chairman Kirit Dixit
Vice Chair 1 Har Dayal
Vice Chair 2 Willie Schmidt
 Art Greenberg
 Peter Donegan

Mini-Show:
General Chair:
General Vice Chair:
Tech. Program Chair:

Kirit Dixit
 Har Dayal
 George Kannell
 Ken Oexle
 Russell Pepe