

## Chapter Meetings

*SCV-LEOS 11/2: Photonics in Dentistry* - new optical near-IR diagnostic tools hold promise for early detection of tooth decay and for removal and modification ... [\[more\]](#)

*SCV-CAS - 11/8: Challenges Ahead in Designing Embedded Analog Circuits in Nanometer Technologies* - The progress towards nanometer transistor sizes poses serious problems for the embedding of analog functions ... [\[more\]](#)

*SCV-SP - 11/8: Nonlinear Adaptive Systems* - many problems have noise and distortion that are time varying & nonlinear; use of the Volterra, Wiener models [\[more\]](#)

*SCV-ED - 11/9: Practical Nanotechnology* - state of commercialization, efforts by start-ups and large companies, commercialization models, and investment risks .. [\[more\]](#)

*SCV-CPMT&LEOS - 11/10: Packaging Challenges in MOEMS Components: the DMD as a Case Study* - the digital micromirror device is a successful product in spite of low volume, hard-to-hold, and hard-to-handle problems... [\[more\]](#)

*SCV-COM - 11/10: Wireless Technology Direction for the 21st Century* - where technology, features and advances are positioned with wireless carriers for the next several years: UMTS or CDMA, IPv4 versus IPv6, ZigBee, UWB, Bluetooth ... [\[more\]](#)

*SCV-MTT - 11/11: Microwaves in the Time-Domain* - time-domain characterization can be used for high-speed digital circuitry with clocks in the uwave region . [\[more\]](#)

*SCV-CS - 11/11: Web Intelligence, World Knowledge and Fuzzy Logic* - for the fuzziness of world knowledge, new search engine tools are needed having capability to deal with partiality of certainty or truth ... [\[more\]](#)

*SCV-PACE - 11/15: Parachuting to a Soft Landing in the Silicon Valley Job Hunt* - talk by the author of "What Color is Your Parachute?" - job searching ... [\[more\]](#)

*SCV-CNSV - 11/16: Medical Device Development and Entrepreneurship* - the unique features of product development in the medical device industry, with a view from the consulting perspective ... [\[more\]](#)

*SCV-PSES & PES/IAS - 11/17: Review of 2005 National Electrical Code Changes* - an intro to selected changes from the 2005 NEC with time for Q&A . [\[more\]](#)

*SCV-CSS - 11/17: Eulerian Modeling and Predictive Control of Air Traffic Flow* - the dimension depends only on the number of elements in the network, and is invariant with respect to the number of aircraft ... [\[more\]](#)

*SCV-EMB - 11/17: A Medical Device Entrepreneur's Guide to Understanding and Creating Value* - a review of seven keys for maximizing value for an early stage company with recent case studies ... [\[more\]](#)

*SCV-SSC - 11/18: Cascaded Noise-Shaping for Oversampling A/D and D/A Conversion* - cascaded oversampling modulators with low oversampling ratios has been extended to enable digitization of signals to several MHz ... [\[more\]](#)

*SCV-CE - 11/18: Digital Living 2010* - a strategic overview of some of the forces driving the Digital Home, where the market is now, where it is going, some of the roadblocks, and who is involved ... [\[more\]](#)

*OEB-IAS+PES - 11/18: Advanced Energy Meters and Power Quality Monitors* - today's advanced meters can do many tasks simultaneously, such as process control functions, power quality monitoring, and load shedding operations ... [\[more\]](#)

*SCV-EMS - 12/8: From Engineer to Entrepreneur and A Sport's Analogy for Managing Personal and Team Performance* - views from a technology incubator ... the similarities which translate into higher personal and team performance ... [\[more\]](#)

## Upcoming Courses in the Bay Area

### **Breakthrough Project Management**

Nov. 3-4 in Mountain View. Learn the standard methodology, terminology and tools that produce more efficient results and increased buy-in [\[more\]](#)

### **Presentation Skills for Engineers**

Nov. 5 in Mountain View. for professionals who are called upon to make formal or informal presentations [\[more\]](#)

### **Reliability Engineering Course**

6 weeks, beginning Jan. 11. Reliability Mgmt - Probability and Statistics - Modeling and Prediction - Maintainability and Availability - Reliability Testing - Product Liability [\[more\]](#)

## **East Bay Entrepreneur's Capital Conference**

- Friday November 19, 2004
- 9:00 AM - 6:30 PM
- Oakland Marriott Hotel ... [\[more\]](#)

## News

Elections for Section Officers for the 2004 calendar year will take place during November. The candidate profiles and ballot will arrive in your email box along with a PDF file with information about the candidates, ready for you to make your selections. Please be sure to return it by the deadline.

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# IEEE GRID

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IEEE **GRID** is the monthly newsmagazine of the San Francisco Bay Area Council of the Institute of Electrical and Electronics Engineers, Inc. As a medium for both news and opinion, the editorial objectives of IEEE **GRID** are to inform readers in a timely and objective manner of newsworthy IEEE activities taking place in and around the Bay Area; to publish the official calendar of events; to report on IEEE activities of a national and international scope; and to serve as a forum for comment on areas of concern to the engineering community by publishing contributed articles, invited editorials and letters to the editor.

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## *From the editor . . .*

I took the photo at the top of the front cover on a drive in mid-October, coming back to the Bay Area from Bishop, CA. The weather had been clear on my trip through Yosemite and Tioga Pass, then down the east face of the Sierra to Bishop. A few days later, though, an early-season storm came in from the Bering Strait, dumping several feet of snow at the higher elevations. With all the Sierra passes closed, I wandered down 395 to the Tehachapi Mountains, came across Bakersfield, then returned via Route 5.

In the photo you can see the clearing storm. The snow level sits at the 6500' level (the visible snow line), with Mount Whitney still obscured in clouds. The brown hills to the right are just north of the famed Alabama Hills, where dozens of western movies (including **How the West was Won**) were filmed.

For those of you who like stunning photography, I can highly recommend a stop at the Mountain Light Gallery ( [mountainlight.com](http://mountainlight.com) ), the primary display venue for Galen Rowell's beautiful outdoors pictures. It is (naturally) in downtown Bishop, near the site of the plane crash that took his life two years ago. There is currently an exhibit of David Muench's images, equally stunning, on display through the end of the year (in case you can drop by).

Most IEEE Members associate themselves technically with one or more of the IEEE Societies, and most Societies have Chapters in the Bay Area. At these Chapter meetings you can visit with other professionals, learn new aspects of the field, and do that "networking" so vital to a long (and varied) career. In fact, this primary aspect of attending our meetings is the reason that we chose the suffix for our **GRID** domain name: "**dot-net**". Think of this the next time you see **www.e-grid.net** in an email or on our website.

This is also the time of year that your Chapter is seeking "new blood" to serve as an officer, help on the Program Committee, etc – give them a hand. And take time to vote when you get your Section ballot from me in early November.

*Paul Wesling* [editor@e-grid.net](mailto:editor@e-grid.net)

**NOTE:** This PDF version of the IEEE **GRID** – the **GRID.pdf** – is a monthly publication and is issued a few days before the first of the month. It is not updated after that. Please refer to the Online edition and Interactive Calendar for the latest information: [www.e-GRID.net](http://www.e-GRID.net)

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## Information Systems and Technology Management

Assistant Professor Faculty Position #732-05  
Associate or Full Professor Faculty Position #732T-05

The faculty in Information Systems and Technology Management (ISTM) at the University of California, Santa Cruz invite applications for tenured and tenure track (Assistant, Associate, and Full Professor) faculty positions. Due to the multidisciplinary nature of this program, we expect applicants to have diverse backgrounds, and a combination of undergraduate and graduate degrees in business/economics and engineering/computer science is suggested. Professional experience in industry or close research contacts with industry is preferred. The campus is especially interested in candidates who can contribute to the diversity and excellence of the academic community through their research, teaching, and service.

The emphasis of the program is systems at the boundary between technology and business, through the use of information systems, with a focus on (but not limited to):

- **Innovation Engineering and Management:** new product development and introduction, knowledge management including machine learning, e-business, supply chain management, multi-agent systems, mechanism design; stochastic optimization in enterprise management, finance engineering, computer-based process reengineering, Internet and Web based decision support systems, complex systems-of-systems, venture analytics
- **IT Management:** Data warehousing and data mining; network management; management and control of IT systems, data centers, and computer clusters; competitive use of information systems; software management

Applicants should submit a curriculum vitae; a statement of research plans; a statement of teaching interests; URLs of selected reprints; and ensure that at least **three** confidential letters of recommendation are sent directly, by the deadline of **December 10, 2004**. **We strongly encourage electronic submission of your materials.** Directions are given at [www.soe.ucsc.edu/jobs/](http://www.soe.ucsc.edu/jobs/). All letters will be treated as confidential documents; please direct your references to UCSC's confidentiality statement at [www2.ucsc.edu/ahr/policies/confstm.htm](http://www2.ucsc.edu/ahr/policies/confstm.htm). Alternatively, application materials may be mailed to: Information Systems and Technology Management Search Committee, Baskin School of Engineering, 1156 High Street, University of California, Santa Cruz, California 95064. Please indicate clearly whether you are applying for an (**untenured**) Assistant Professor, a (**tenured**) Associate Professor or a Full Professor position. **Refer to position #732-05 for untenured or #732T-05 for tenured.** For further details about the Baskin School of Engineering at UCSC, see [www.soe.ucsc.edu/](http://www.soe.ucsc.edu/).

### IEEE Professional Skills Courses

#### Breakthrough Project Management

Date/Time: Wed-Thurs, November 3-4, 8:30AM-4:30PM  
Instructor: Richard Simonds  
Location: Verisign, Mountain View  
Fee: \$575 for IEEE Members; \$625 non-members

This 2-day course provides participants with a common methodology, terminology and tools that produce more efficient results and increased buy-in through improved visibility, reliability and consistency.

**Key Topics:** - Project Barriers & Breakthroughs - Team Development & Leadership - Define POS & Scope - Use the Trade-Off Flexibility Matrix - Make Fact-Based Decisions - Define Tasks - Create Work Breakdown Structure - Analyze Risks & Contingency Plans - Diagram Dependencies (CPM,PERT) - Manage the Project: Step-by-Step - Effective Meetings

"The methods and processes used for this class were not just tools and packages. They were a way to approach, manage and think, as well as communicate and deliver projects with less firefighting. I particularly liked the flexibility matrix, POS, risk analysis and critical path analysis."

*SCV Chapters, Engineering Management & Components, Packaging and Manufacturing Technology Societies*

#### Presentation Skills for Engineers

Date/Time: Friday, November 5, 8:30AM-4:30PM  
Instructor: Peter Rosselli  
Location: Verisign, Mountain View  
Fee: \$425 for IEEE Members; \$475 non-members

This program is for professionals who are called upon to make formal or informal presentations – to deliver their ideas clearly, demonstrate confidence and enthusiasm, and handle objections with poise. Class size is limited to 10 participants.

**Key Topics:** - - Conquer "stage fright" - Use effective eye contact & gestures - Optimize opening & closing statements - Make key information memorable - Create & use visual aids - Use notes skillfully - Handle challenging questions & difficult people

**Improve your skills – register for one of these classes, or for one coming up in November. Bring a team!**

For complete information and registration form, see our Chapter website, right-hand column:


[www.cpmt.org/scv/](http://www.cpmt.org/scv/)

## RELIABILITY ENGINEERING COURSE

Reliability is a key attribute of the successful and profitable product. Understanding the disciplines and metrics and applying them during design, validation, test, and production yields big rewards. Yet, too few companies have engineering professionals who are skilled in the discipline of reliability.

If you are a **design, test, reliability, or production engineer** and need a good, in-depth course in hardware reliability engineering, this class can benefit you substantially. Key Topics:

- Reliability Management
- Data Collection & Corrective Action Systems
- Probability and Statistics
- Reliability Tools in Design and Development
- Modeling and Prediction
- Maintainability and Availability
- Reliability Testing
- Product Safety and Liability

 OPS ALACARTE™ has offered the Reliability Engineering Course for several years. Students have found it very valuable in preparing for the Certified Reliability Engineer exam. *Becoming certified as a Reliability Engineer (CRE) can be valuable to your employer and your career. The success rate in passing is several times higher for students who have taken the course compared to those who have not.*

***Course Starts January 11<sup>th</sup>, 2005***

- Instructor: Jurek Zarzycki, CRE, CQE
- Schedule: Eight consecutive Tuesdays 6 - 10 PM from  
January 11<sup>th</sup> through March 1<sup>st</sup>, 2005
- Location: Santa Clara, CA
- Course Fee: \$995 including materials (Text Book and Solutions Book will be distributed the first night).  
A 25% discount is extended to anyone who is currently unemployed.
- Registration: This course fills up quickly and seating is limited.  
To register, please email to: [relclass@opsalacarte.com](mailto:relclass@opsalacarte.com)  
or call (408) 472-3889

### Photonics in Dentistry

Speaker: Dr. Daniel Fried, Department of Preventive and Restorative Dental Sciences, UCSF

Time: Networking and Pizza Social at 7:00 pm, Presentation at 8:00 pm

Cost: none

Place: National Semiconductor Credit Union Auditorium, 955 Kifer Road, Sunnyvale

RSVP: to Ram Sivaraman, ramsivaraman@ieee.org

Web & Map: [ewh.ieee.org/r6/scv/leos/](http://ewh.ieee.org/r6/scv/leos/)

**Dr. Daniel Fried** is Associate Professor at the division of Biomaterials and Bioengineering, Department of Preventive and Restorative Dental Sciences, UCSF. He is also the director of the Masters Program in Oral and Craniofacial Sciences and a member of the Joint UC SF and UC Berkeley Bioengineering Group. He obtained a B.S (1984) and M.S.(1986) from the University of Toledo in Physical Chemistry and a Ph.D., also in Physical Chemistry, from Wayne State University in 1991. His research interests are Laser Interactions with Biological Tissues, Tissue Spectroscopy, and Optical Imaging of Tissues for Detection and Diagnosis.

New optical diagnostic tools utilizing near-IR light hold considerable promise for the early detection and diagnosis of dental caries (tooth decay), and IR lasers are ideally suited for the conservative removal and modification of these early lesions. Although there have been significant gains in reducing the incidence of dental caries, it remains the principal cause of tooth loss in the U.S. A new approach towards the treatment of dental caries is advocated with an emphasis on early detection and monitoring followed by minimal intervention. At UCSF we are developing new near-IR based optical diagnostic tools for the detection and characterization of these caries lesions in the early stages of development. These tools include near-IR imaging and polarization sensitive-Optical coherence tomography (PS-OCT). Lasers are ideally suited for conservative intervention, since laser light can be precisely focused to preferentially ablate carious tissue. Moreover, laser radiation vaporizes water and protein and changes the chemical composition of the remaining mineral of enamel and dentin, thus decreasing the solubility to acids around the periphery of the restoration site to leave a smooth surface with an enhanced resistance to secondary caries. Lasers are less likely to require anesthesia and induce less noise and pain. Therefore they are advantageous for treating children, and patients with dental phobias.

### Nonlinear Adaptive Systems

Speaker: Tokunbo Ogunfunmi, Ph.D, Associate Professor, Dept of Elect Eng, Santa Clara Univ

Time: 6:30pm: Fast Food & drinks;  
7:00pm: Presentation

Cost: \$1 Donation Recommended towards Refreshments

Place: National Semiconductor Credit Union Bldg (Building 31), 955 Kifer Rd., Sunnyvale

RSVP: not required

Web: [www.ewh.ieee.org/r6/sps/](http://www.ewh.ieee.org/r6/sps/)

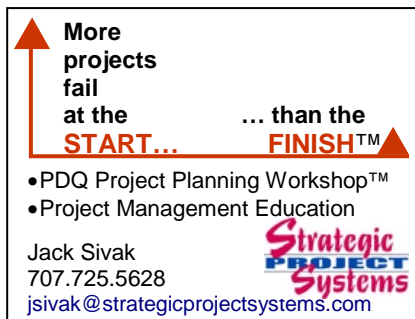
Tokunbo Ogunfunmi, is an Associate Professor of Electrical Engineering and the Director of the Signal Processing Research Lab. at Santa Clara University, Santa Clara, CA 95053. His research areas are digital and adaptive signal processing, VLSI design, multimedia communications and artificial neural networks.

He is a Senior Member of the IEEE. He was the IEEE SCV SPS Program Chair (1996/97) and he is currently a member of the Steering Committee of the IEEE SPS SVC. Dr. Ogunfunmi received his Ph.D. in Electrical Engineering from the Stanford University, Stanford, CA.

several naturally-occurring phenomena. Lots of problems encountered in the real world involve noise and distortion due to physical processes that are time varying and nonlinear. These cannot be accurately characterized by linear fixed transfer functions.

However, engineers have largely avoided the area of nonlinear systems partly because of the limitations of the analytical tools at the disposal of the engineer and partly because the education of engineers emphasizes linear systems for which there have been a myriad of analytical tools developed over the years. Emergence of new analytical tools and faster computer processing power can now make nonlinear system realizable and usable in practice.

This talk will discuss the application of a truncated Volterra model for realizing nonlinear adaptive filters, which presents two major drawbacks namely, no exact method of isolating the individual Volterra operator exists for the measurement of Volterra kernels of a given system, and secondly, a problem concerns the large eigen-value spread which results in slow convergence speed and large mis-adjustment, especially for the gradient-based nonlinear adaptive algorithms. It will be followed by applications of nonlinear adaptive systems based on the nonlinear Wiener model. The particular polynomial to be used is determined by the characteristics of the input signal we're required to model. The advantages of this method will be discussed with several examples comparing the performance of both methods.



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### Challenges Ahead in Designing Embedded Analog Circuits in Nanometer Technologies

Speaker: Prof. Georges Gielen,  
Katholieke Universiteit Leuven  
Time: Refreshments at 6:30pm;  
presentation at 7:00pm  
Cost: free  
Place: Pebble Beach Conference Center, Cadence  
Bldg 5, 2655 Seely Ave, San Jose  
RSVP: to [satheesh.sudarsan@ieee.org](mailto:satheesh.sudarsan@ieee.org)  
Web: [www.ewh.ieee.org/r6/scv/cas/](http://www.ewh.ieee.org/r6/scv/cas/)

The progress in ULSI technology towards nanometer transistor sizes and the corresponding reduction in supply voltages, poses serious problems for the embedding of analog functions in fully integrated systems. This talk will focus on these difficulties. The limiting factors to the performance of analog circuits will be reviewed, and their evolution with technology will be outlined.

The impact of the scaling supply voltages will be described, and the consequence on the power consumed by the analog circuits will be explained. This will be illustrated for some typical analog blocks, such as data converters. In addition, the problems due to the analog-digital co-integration such as coupling of switching noise will be highlighted.

**Georges G.E. Gielen** received the MSc and PhD degrees in Electrical Engineering from the Katholieke Universiteit Leuven, Belgium, in 1986 and 1990, respectively. After serving as visiting lecturer in UC Berkeley, he joined the Department of Electrical Engineering - ESAT of the Katholieke Universiteit Leuven, where he is currently a Full Professor.

His research interests are in the design of analog and mixed-signal integrated circuits, and especially in analog and mixed-signal CAD tools and design automation (modeling, simulation and symbolic analysis, analog synthesis, analog layout generation, analog and mixed-signal testing). He is coordinator or partner of several (industrial) research projects in this area. He has authored or coauthored two books and more than 200 papers in edited books, international journals and conference proceedings.

He is a Fellow of the IEEE, and the President-Elect of the Circuits and Systems Society of IEEE.



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### Practical Nanotechnology

Speaker: Dr. Wasiq Bokhari, Quantum Insights  
Time: 6:00 PM - Pizza , 6:15 PM - Lecture  
Cost: free  
Place: National Semiconductor, Building 31 Large Auditorium, 955 Kifer Road, Sunnyvale  
RSVP: not required  
Web: [www.ewh.ieee.org/r6/scv/eds/](http://www.ewh.ieee.org/r6/scv/eds/)

The talk will focus on the general state of nanotechnology commercialization. It will present an overview of the various efforts by start-ups and large companies as well as the commercialization models being followed. In addition, the talk will cover some of the investment risks of nanotechnology start-ups. It will conclude with an overview of the role of large companies in nanotechnology.

**Wasiq Bokhari** received his Ph.D. in physics from the Massachusetts Institute of Technology. He was part of the team that discovered the top quark at the Fermi National Accelerator Laboratory. He has done post-doctoral research on fundamental physics and has more than 50 scientific publications and presentations to his name. He was also part of a small team that designed next generation particle detectors at Fermilab. As an entrepreneur, he has been part of the founding teams of various ventures including Clickmarks, an enterprise software provider. As the Senior Vice President of Products, he oversaw the creation and successful launch of the company's award-winning software. He has spoken on various industry forums as an invited speaker. He is cited as a co-inventor of 10 industry patents.

Dr. Bokhari is a managing partner of Quantum Insight, a pioneering business strategy services firm in the field of emerging new materials and nanotechnology.



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### Wireless Technology Direction for the 21st Century

Speaker: Robert Sanchez, VP & Chief Architect,  
inCode Wireless  
Time: 6:00 p.m. (pizza & soda), 6:30 p.m.  
presentation  
Fee: \$1 donation to partially cover food cost  
Place: National Semiconductor Credit Union, Bldg.  
31, 955 Kifer Rd., Sunnyvale  
RSVP (required): [rsvp@comsocscv.org](mailto:rsvp@comsocscv.org)  
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**Robert J. Sanchez** is currently with inCode Wireless, a San Diego-based consulting firm of over 300 people, he co-founded in 1998. He serves as VP & Chief Architect responsible for developing technical and strategic points of view on telecommunications advances such as SDR, MIMO, IPv6, mesh topologies, telematics and others as well as wireless over-the-air technologies such as 802.11, 802.16, 802.20, 802.21, CDMA (UMTS-FDD, UMTS-TDD, 1xRTT, 1xEV DV, 1xEV DO, TD-SCDMA), OFDM, GSM/GPRS/EDGE and others. Robert oversees the operation and integration of inCode's Wireless Technology Lab licensed to operate in the PCS and MMDS bands consisting of over \$30 million worth of wireless infrastructure, core network systems and OSS/BSS platforms.



Prior to inCode, Robert was with Qualcomm from 1990 where he led Globalstar's worldwide system integration and test program. He also was the general manager for the Ancillary Test Products and Optimization Group as well as led the initial CDMA research and development program through concept validation and test. While on the CDMA program, Robert jointly with others defined and developed industry standards for CDMA handsets and base stations. Robert also worked on the OmniTRACS program designing airborne applications of Ku-band satellite systems.

As we advance into the 21st century, consumers and the enterprise are confused with the alphabet soup of wireless technologies in the market place. Do we really care what version of UMTS or CDMA we're using, what is IPv4 versus IPv6, ZigBee, UWB versus Bluetooth? This discussion addresses where technology, features and advances are positioned with wireless carriers for the next several years and how performance is measured

Prior to Qualcomm, Robert was a staff systems engineer and section head at TRW/Military Electronics and Avionics Division starting in 1984 managing several defense surveillance systems for SIGINT, COMINT and ELINT networks. He oversaw the design, development and test and served as Test Director of the avionics portion of a high altitude UAV used in the Persian Gulf.

Prior to TRW/MEAD, Robert was a systems analyst at General Dynamics/Electronics Division starting in 1982 designing simulations and coding software for avionics systems such as the Tomahawk digital imaging system prior to GPS. He also developed satellite navigation software for Mobile Sea Range operations.

Robert holds a Masters Degree in Electrical Engineering from the University of Southern California and a Bachelor's Degree in Mathematics from the University of California at San Diego. He is also a wireless engineering professor at the University of California at San Diego for the Engineering Extended Studies Program. Robert is also a member of IEEE.

Robert sits on several company boards as a director and as an advisor providing technical direction and guidance for commercial product development and introduction. Robert has published many papers and is an invited speaker at telecommunications conferences worldwide.

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## WEDNESDAY NOVEMBER 10

### Packaging Challenges in Micro-Optical Electromechanical Systems Components: the DMD™ as a Case Study

Speaker: Dr. Richard Gale, Texas Tech University

Time: Seated dinner at 6:30 (\$25 if reserved before Nov 6; \$30 after & at door; vegetarian available)

Place: Ramada Inn, 1217 Wildwood Ave (Fwy 101 frontage road, between Lawrence Expressway and Great America Parkway), Sunnyvale

RSVP: to Allen Earman, [allen.m.earman@intel.com](mailto:allen.m.earman@intel.com)

Web & Map: [www.cpmt.org/scv](http://www.cpmt.org/scv)



It is commonly held that packaging for MEMS components can run to 60-80% of unit cost. This is due to a number of factors including "hard-to-handle" and "hard-to-hold" problems as well as generally low volumes. When optical performance is added to the mix cost, complexity, and reliability all move in unfavorable directions. The digital micromirror device (DMD™) made by Texas Instruments has become a successful product in spite of these challenges. An optical quality window must be incorporated into the package to allow light modulation. Since the display is an image of the face of the device, the package must be cosmetically pleasing as well as optically functional. In digital cinema applications as much as 80 Watts in the visible spectrum impacts the device and parts of the package so that thermal management is also critical. High definition video bandwidth at ever-increasing bit depths places extreme demands on impedance control and/or pin count. Finally, the mechanical contact which makes possible acceptable pixel uniformity requires surface chemistry control on the monolayer or nanometer scale. Some of these special requirements and attempts at their solutions are discussed in this presentation.

**Prof. Richard Gale** is in the Electrical and Computer Engineering department at Texas Tech University. He held the position of Distinguished Member, Technical Staff, and was responsible for coordinating the work of the New Applications Research and Development Group in the Technology Development section of Digital Imaging at Texas Instrument Incorporated until retirement in April, 2001. Dr. Gale holds the A.B. degree in Physics from the University of California at Berkeley (1976), and M.S. and Ph. D. degrees from Lehigh University (1979 and 1984, respectively). Dr. Gale joined the Central Research Laboratories at Texas Instruments in 1984 to apply his graduate work on electron traps in silicon dioxide to charged-coupled device imagers for space-borne applications. He moved from CCD's to more general photonics interests in 1985, in time to make several key contributions in the developing MEMS spatial light modulators at TI. He was a member of the team taking the Digital Micromirror Device (DMD™) from research into a corporate venture projects activity in 1991 after successfully managing parts of the initial customer interactions in projection displays. He contributed to the development of Corporate Venturing at Texas Instruments, and managed the demonstration/validation activity in the early stages of Digital Imaging at TI.

After successfully promoting the technology internally and externally through a period of explosive growth, he took a position in Production Engineering for the development of first generation portable projectors. His final position included responsibility for novel approaches and new technologies utilizing and

*(Continued, on next page)*

Shannon Lecture Series:

### Web Intelligence, World Knowledge and Fuzzy Logic

Speaker: Lotfi Zadeh, Professor, UC Berkeley

Time: 7pm - Refreshments (no cost),  
7:30pm - Presentation

Place: Room 380C, Stanford University, Main Quad

RSVP: not required

Web: [www.siliconvalleycs.org](http://www.siliconvalleycs.org) for Map

**Lotfi A. Zadeh** is a Professor in the Graduate School at the University of California, Berkeley, and serves as Director of the Berkeley Initiative in Soft Computing (BISC).

Since 1965, when he published his first paper on fuzzy sets Lotfi Zadeh has been involved in development of fuzzy logic and its applications. His recent work has been focused on Computing with Words, Precisiated Natural Language, and the Computational Theory of Perceptions. He has received numerous awards, including twenty-two honorary doctorates.

He received the IEEE-Medal of Honor, which has been nicknamed the electrical engineering "Nobel" prize.

Existing search engines – with Google at the top -- have many remarkable capabilities; but what is not among them is deduction capability – the capability to synthesize an answer to a query from bodies of information which reside in various parts of the knowledge base.

In recent years, impressive progress has been made in enhancing performance of search engines through the use of methods based on bivalent logic and bivalent-logic-based probability theory. But can such methods be used to add nontrivial deduction capability to search engines – that is, to upgrade search engines to question-answering systems? A view which is articulated in this talk is that the answer is "No." The problem is rooted in the nature of world knowledge – the kind of knowledge that humans acquire through experience and education. It is widely recognized that world knowledge plays an essential role in assessment of relevance, summarization, search, and deduction. But a basic issue which is not addressed is that much of world knowledge is perception-based, e.g., "it is hard to find parking in Paris," "most professors are not rich," and "it is unlikely to rain in midsummer in San Francisco." The problem is that (a) perception-based information is intrinsically fuzzy; and (b) bivalent logic is intrinsically unsuited to deal with fuzziness and partial truth.

To come to grips with the fuzziness of world knowledge, new tools are needed. The principal new tool – a tool which is briefly described – is Precisiated Natural Language (PNL). PNL is based on fuzzy logic and has the capability to deal with partiality of certainty, partiality of possibility and partiality of truth. These are the capabilities that are needed to be able to draw on world knowledge for assessment of relevance, and for summarization, search and deduction.

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*(Continued, from previous page)*

enabling Digital Light Processing (™) insertion points, providing strategic direction in understanding competitive assessment and intelligence, and coordinating the DLP™ Products Coop programs and technical publication management. Dr. Gale is an author of more than a dozen technical publications, and holds patents in MEMS design, processing, packaging, control circuits, and system utilization concepts.

Dr. Gale is currently pursuing new career directions that will build on and expand his experience in microelectromechanical systems, novel data analysis techniques, information creation and distribution systems, and communications technologies. He accepted a tenured Professorship in the Electrical and Computer Engineering Department at Texas Tech University in Lubbock, TX, that began 1 June, 2002.

Avocational interests include observational astronomy, home theater design, and digital photography.

## THURSDAY NOVEMBER 11

### Microwaves in the Time-Domain

Speaker: Dr. Robert Owens  
Time: 6pm - Refreshments and Social Hour,  
7pm - Technical Presentation  
Place: Agilent Technologies, Santa Cruz  
conference room, Bldg 50 5301 Stevens  
Creek Blvd, Santa Clara  
RSVP: not required  
Web: [www.mtt-scv.org/nov\\_mtg.html](http://www.mtt-scv.org/nov_mtg.html)

Engineers involved in microwave and RF design are trained to think of circuits and devices in terms of their frequency-domain characterization. In fact, however, the transmission line is most simply described as a simple delay device with a characteristic impedance that relates wave voltage to wave current. The increasing speed of digital circuitry with clock speeds (not to mention pulse edge rates) in the microwave region has brought many of us to include time-domain characterization into our tool kit. In addition, recent years has seen the availability of test equipment capable on giving practical time-domain information. The purpose of this discussion is to review the basics of time-domain analysis and measurement. Examples of practical circuit issues will be given.

**Robert Owens** has been involved in microwave circuit design and education since 1967. He was worked at a number of Bay Area firms, including GTE Sylvania, Watkins-Johnson, GTE Lenkurt, and L-3 Communications (Narda). Dr. Owens has also consulted with other Bay Area companies, ranging from Apple to Zircon. Since 1983, he has taught at Santa Clara University, San Jose State University, UC Berkeley Extension, and UC Davis, focusing on electromagnetics and microwave circuit issues. His degrees are from the University of Washington (BSEE and MSEE) and Santa Clara University (Ph. D.). Dr. Owens now lives in Auburn and is involved in teaching and research in high-frequency electronics.

## MONDAY NOVEMBER 15

### Parachuting to a Soft Landing in the Silicon Valley Job Hunt

Speaker: Richard N. Bolles, author of "What Color is Your Parachute?"

Time: 6pm - Dinner, 7pm - Technical Presentation

Cost: \$10 for IEEE Members, \$15 for non-Members

Place: Cadence Design Systems - Pebble Beach Conference room, Building 5, 2655 Seely Ave, San Jose

RSVP: use the PayPal links on the website

Website: [www.ieee.org/scv/scv\\_pace.html](http://www.ieee.org/scv/scv_pace.html)

**Richard Nelson Bolles**, known the world over as the author of the best-selling job-hunting book in history, "**What Color Is Your Parachute?**," is acknowledged as "America's top career expert" by Modern Maturity Magazine, "the one responsible for the renaissance of the career counseling profession in the United States over the past decade" by Money Magazine, and "the most widely read and influential leader in the whole career planning field" by the U.S. Law Placement Assn. Dick is listed in "Who's Who In America," and "Who's Who In the World" and has been featured in countless magazines (including Reader's Digest, Fortune, Money Magazine and Business Week), newspapers, radio, and TV (CNN, Ted Koppel, ABC's Nightline, Diane Sawyer, CBS News and many others).

Dick Bolles was born in Milwaukee, Wisconsin, grew up in Teaneck, N.J., where he attended and graduated from high school. He served in the U.S. Navy and worked as a messenger on Wall Street before attending college. The author's academic background is in engineering, physics, and Biblical studies. Having majored in chemical engineering during his two years at the Massachusetts Institute of Technology, Bolles transferred to Harvard University and earned a bachelor's degree in physics (cum laude). He also holds a master's degree in New Testament studies from the General (Episcopal) Theological Seminary in New York City, is a member of MENSA and the recipient of two honorary doctorates.

Bolles lives in the San Francisco Bay Area, and has five grown children: Stephen, Mark, Gary, Sharon, and Serena (his step-daughter).

At the top of the ladder, we learn that corporate leaders often get a "golden parachute" to enable them to move to another position with little financial hardship. The rest of us have to make other plans, or find ourselves making these plans when we find ourselves out of work.

Income and job satisfaction are the major reasons engineers take the jobs they do. The "job hunt" is a process of finding a match between the employer's need and the employee's capabilities or skills. A Great match allows the employer to make more profit, and rewards the employee with a larger income. However, even in today's Internet world, the process of finding a good match between employer and employee still seems to be sub-optimal.

Following the cancellation of the U.S. Apollo program, IEEE members experienced an economic dislocation that was quite unexpected at the time, considering the value the country had put on the engineering profession and the electronics industry up to that point in time. On the frontline of helping these highly trained individuals find new work, Dick Bolles published a guide to the job hunting process in 1970, called "**What Color Is Your Parachute?**," which offered a better approach to the job hunt than "find the ad, mail a resume, wait and hope." The book has since become known as "the Job Hunter's Bible" [[www.jobhuntersbible.com](http://www.jobhuntersbible.com)] and is now updated annually.

While the internet speeds up the process by which one can "find a posting, email a resume, wait for an interview", many find it just increases the rate of rejection. Since the principles of a better matching process still hold true, the IEEE Santa Clara Valley PACE has arranged for a discussion of the job search process by the author to assist the members in the Section and Council who are facing a job transition now, or may face one in the near future. A light dinner will be served for a nominal fee, with a discount for any IEEE member and guest.



## TUESDAY NOVEMBER 16

### Medical Device Development and Entrepreneurship

Speaker: T. Kim Parnell, Ph.D., P.E., Parnell Engineering & Consulting  
Time: 7:00 PM Informal Networking, 7:15 Formal Networking, 7:30 PM Meeting (no cost)  
Place: Sheraton Hotel, 1100 North Matilda Ave, Sunnyvale  
RSVP: not required (seating is limited)  
Web: [www.ieee-sv-consult.org/200411.htm](http://www.ieee-sv-consult.org/200411.htm)

Dr. Kim Parnell is Principal and Founder of PEC ([www.parnell-eng.com](http://www.parnell-eng.com)), an engineering consulting firm that focuses on providing support for early stage medical device and technology companies. He specializes in the mechanical engineering design and behavior of biomedical devices, shape memory metals, bioabsorbable polymers, MEMs, electronic and miniature components, wireless sensors, telecommunications, and applications of nanotechnology. Dr. Parnell consults actively in these areas as well as failure analysis and reliability. He served as a Visiting Associate Professor in the Mechanical Engineering Department at Stanford University and is a coach and mentor for the innovative Stanford Biodesign program.

Dr. Parnell is also a Director of NanoBioConvergence and on the CSIX Connect ([www.csix.org](http://www.csix.org)) Executive Team and Education Committee, and was instrumental in the effort to obtain its 501(c)3 non-profit status. He is Co-Founder and Chief Operations Officer for nWire Technologies and joined Blootech in a consulting role as Vice President of Operations. Dr. Parnell made his first trip to China in 2003 to explore business opportunities and establish partnerships. He worked previously for Rubicor Medical, Exponent Failure Analysis Associates, SST Systems, ATT Bell Laboratories, Stanford University, and General Motors. Dr. Parnell holds Ph.D. and MSME degrees from Stanford University in Mechanical Engineering, a BES from Georgia Tech, and completed the Silicon Valley Executive Business Program (SVEBP).

Medical device development is an extremely exciting and rewarding field. It is characterized by rapid innovation, high reliability, and the potential for major impacts/improvements on patients and procedures. Medical devices are regulated products (U.S. FDA, etc.) which bring in additional complexity.

The San Francisco Bay area is a hotbed of development for medical devices of all types. Many new companies get their start here due to the critical mass of talent, capital, and university research. All of the major medical device companies are well-represented here as well, and they often view the new players as acquisition targets.

Biotechnology and medical devices have been one of the few bright spots during the business slump of recent years. Is biotechnology the next bubble that may burst?

This presentation will outline some of the unique features of product development in the medical device industry. It will emphasize the view of the industry from the consulting perspective and point out some of the opportunities available. It will also cover technologies such as finite element analysis (FEA) and virtual prototyping to show how they can reduce the development cycle.

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**WEDNESDAY NOVEMBER 17**

## **Review of 2005 National Electrical Code Changes**

**Speaker:** Chuck Mello, Program Manager Field Evaluations, Underwriters Laboratories  
**Time:** Dinner 6:00 p.m.; Presentation 7:00 p.m.  
**Place:** Ramada Inn, 1217 Wildwood, Sunnyvale (408) 245-5330  
**RSVP:** Randal Kaufman, (650) 464-5170, rkaufman@powersmiths.com  
**Cost:** \$22.00 IEEE members, \$25.00 nonmembers, and \$10.00 students  
**Web:** [www.e-grid.net/docs/0411-scv-pes.pdf](http://www.e-grid.net/docs/0411-scv-pes.pdf)

Our speaker will be **Chuck Mello** of Underwriters Laboratories, Inc. Chuck received a BS degree from Oregon State University in 1972 with co-majors in Electrical Power Technology and Naval Science. He worked for Electro-Test, Inc. from 1977 until 1996, as a Field Engineer, Senior Field Engineer, Operations Supervisor, Area Manager, and Director of Training and Standards. During that time he started the ETI operations in Portland, Oregon. In 1996 Chuck assumed a new corporate position at ETI as Manager Conformity Assessment overseeing two NRTL laboratories, field evaluations, SEMI evaluations and CE operations on a corporate wide basis. Underwriters Laboratories hired Chuck in January 2004, as their Program Manager for Field Evaluations. He is tasked with bringing together the various entities within UL doing field evaluations to provide rapid response and consistent operations for the North American region. Chuck has been a principal member of the NEC Code Making Panel 5 since 1996. He is a nationally recognized speaker on the NEC, grounding and bonding, high voltage power systems, and electrical safety.

Please join us for a review of changes to the National Electrical Code for 2005. The National Electrical Code is a constantly evolving document updated every three years. The 2005 edition of the NEC was adopted by NFPA in July 2004 and the first printing was shipped in mid September. Changes for usability, alignment with international code styles, restructuring of articles and relocations were not as extensive as in 1999 and 2002. However, over 3300 proposals for changes and over 4400 comments on the panel actions were submitted and reviewed during the proposal stage, so there are new articles and other significant changes. One example is the new Article 409 for Industrial Control Panels, which will have inspectors inspecting ICPs in cases when the assembly has no recognized third party Listing or Field Evaluation mark. Tonight's presentation will introduce to you selected changes from the 2005 NEC and allow you some time for questions and discussion.



### Eulerian Modeling and Predictive Control of Air Traffic Flow

Speaker: Dr. P. K. Menon, Optimal Synthesis Inc  
Time: 7:00pm - 8:30pm  
Location: Room 325, Sullivan Engineering Center (Bldg 404), Santa Clara Univ, Santa Clara  
Map and Directions: [www.scu.edu/nav/map/directions.html](http://www.scu.edu/nav/map/directions.html)  
Free parking in parking structure (Bldg 714) Pick up free 2-hour visitor parking permit from booth at gate  
Food: Free Pizza & drinks provided  
RSVP: Not required  
Web: <http://www.ewh.ieee.org/r6/scv/css/>

A methodology for mathematical modeling and analysis of air traffic flow is presented. The modeling approach describes the air traffic environment in terms of traffic counts in user-defined elements of the airspace system, and traffic flows between these elements. The resulting Eulerian model of air traffic allows dynamic analysis and flow-control system design using well-established control theoretic approaches. The primary advantage of the Eulerian approach is that the dimension of the air traffic flow model depends only on the number of defined elements in the traffic network, and remains invariant with respect to the number of aircraft in the airspace system. The synthesis of air traffic flow control algorithms using the model predictive control technique in conjunction with these models will be discussed. Computational implementation, and traffic flow control using air traffic data over the US national airspace will be given.

**Dr. P. K. Menon** has been the president and chief scientist at Optimal Synthesis Inc since 1992. His experience includes 22 years as a research scientist in the aerospace industry, 6 years at Georgia Institute of Technology as a faculty member and 3 years with NASA as a visiting scientist. He has been an Adjunct Lecturer at the Santa Clara University since 1989.

Dr. Menon has been involved in the development of flight control systems for aircraft, rotorcraft, missiles, launch vehicles, spacecraft, and robots. He has received support in these research areas from the Navy, NASA, Air Force, DARPA and the Army. He has published extensively in professional journals and has presented papers at various national and international conferences. He has taught advanced graduate courses in Automatic Control, Signal Processing, and Flight Vehicle Guidance and Control. He has directed Ph.D dissertations and numerous graduate Projects. Dr. Menon has lead short courses at AIAA and IEEE national conferences.

Dr. Menon is a member of Sigma Xi, Sigma Gamma Tau, Senior Member of the IEEE and Associate Fellow of the AIAA. He is the recipient of research awards from AIAA, NASA and the IEEE. Dr. Menon is a reviewer for 10 different archival journals on automatic control and signal processing, and has served as an Associate Editor of the AIAA Journal of Guidance, Control and Dynamics. He is currently an Associate Editor of the IEEE Transactions on Control Applications.

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## WEDNESDAY NOVEMBER 17

### A Medical Device Entrepreneur's Guide to Understanding and Creating Value

Speaker: Richard M. Ferrari, MBA, De Novo Ventures  
Time: 7:30 pm (Optional dinner with the speaker in the Stanford Hospital cafeteria at 6:15)  
Place: Room M114 in the Stanford Hospital, near the "M" marked on map (on website)  
RSVP: not required  
Web: [www.ewh.ieee.org/scv/embs/](http://www.ewh.ieee.org/scv/embs/)

Maximizing value of a start-up is clearly one of the key topics that is not only on the Venture Capitalist's mind but also on the minds of the funders and the employees. Case studies that we will review point to the fact that there are 7 key characteristics to maximizing value for an early stage company. Furthermore it is fairly evident that success can be engineered by focusing on these 7 key elements. Rich Ferrari, with a distinguished and successful career in nurturing medical device company start-ups, will provide his insights on these seven necessary elements for successful entrepreneurship in medicine.

**Richard M. Ferrari** is a Managing Director of De Novo Ventures, a healthcare investment firm with \$350 million under management. He has his BS from Ashland University and an MBA from the University of South Florida. Early in his career, Rich held the position of Executive Vice President and General Manager of ADAC Laboratories. He was also the co-founder of Integrated Vascular Systems (which was recently purchased by Abbott), an early stage femoral artery closure company, and Angiosense, a needle-free, jet injection, local drug delivery company.

In 1991 Rich became the CEO of Cardiovascular Imaging Systems where he orchestrated a successful IPO and ultimately sold the company to Boston Scientific for \$125 million. In 1996 he founded Saratoga Ventures, a venture capital partnership that has provided seed financing to several successful companies, including Atrionix, Oratec, Enteric Medical, Trivascular, and Endotex. Oratec, a portfolio company of which Rich was Chairman, went public and was ultimately acquired by Smith & Nephew.

Rich was co-founder of CardioThoracic Systems Inc. (CTSI), the market leader in disposable instruments and systems for beating-heart bypass surgery, which was acquired by Guidant for \$313 million in November of 1999. As CEO, he led the company to an initial public offering in only 7 months, the fastest of any medical technology company in history.

Following De Novo's investment in Cryovascular Systems in 2000, Rich joined the initial five-person team as the start-up CEO. He built the company to 22 employees, was instrumental in developing the clinical and product strategies, and hired the executive team. In 2002, Rich led Paracor Medical, another De Novo portfolio company. He grew Paracor from its initial 4 to 22 employees, refined the product strategy, raised its Series B round, and hired his replacement CEO.

Rich is the recipient of the Mallinckrodt Award for Excellence in Medicine and twice a finalist for the Entrepreneur of the Year Award. He is currently on six medical company boards.

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# THURSDAY NOVEMBER 18

### Oversampling A/D and D/A Converters

Speaker: Prof. Bruce Wooley, Stanford University,  
IEEE Fellow  
Time: 6:30PM Social, 7:00PM Presentation (no  
cost)  
Place: Cadence Design Systems, Bldg. 5, 2655  
Seely Ave., San Jose  
RSVP: not required  
Web: [www.ewh.ieee.org/r6/scv/ssc/](http://www.ewh.ieee.org/r6/scv/ssc/)

Through the exchange of resolution in time for that in amplitude, noise-shaping sigma-delta modulators offer an efficient means of integrating precision A/D and D/A converters in scaled CMOS VLSI technologies. Cascade architectures are a robust approach to extending the performance of such modulators to signal bandwidths of several MHz as their design is straightforward and they are immune to stability issues that must be addressed in the design of higher-order modulators employing a single quantizer. At signal bandwidths of tens of kHz or less, high oversampling ratios can be used to realize sigma-delta modulators with performance that is insensitive to technology limitations. However, to meet the demands of emerging communications applications, the performance of cascaded oversampling modulators with low oversampling ratios has been extended to enable the digitization of signals with bandwidths of several MHz, centered at either dc or at intermediate frequencies as high as 20 MHz. Distributed noise shaping and multilevel quantization can be used to significantly lower the oversampling ratio needed to achieve a specified precision, thus increasing the signal bandwidth that can be digitized within the constraints of a given technology. Digital cascaded noise shaping modulators can be used for D/A conversion, and means have been found to combine such architectures with semi-digital reconstruction filtering.

**Bruce A. Wooley** is the Robert L. and Audrey S. Hancock Professor of Engineering and the Chairman of the Department of Electrical Engineering at Stanford University. He received the B.S., M.S. and Ph.D. degrees in Electrical Engineering from the University of California, Berkeley in 1966, 1968 and 1970, respectively. From 1970 to 1984 he was a member of the research staff at Bell Laboratories in Holmdel, NJ, and he joined the faculty at Stanford in 1984. His research is in the field of integrated circuit design, where his interests include oversampling A/D and D/A conversion, low-power mixed-signal circuit design, circuit design techniques for video and image data acquisition, high-speed embedded memory, high-performance packaging and testing, noise in mixed-signal integrated circuits, and circuits for high-speed communications. Prof. Wooley is a Fellow of the IEEE and a Past President of the IEEE Solid-State Circuits Society. He has served as the Editor of the IEEE Journal of Solid-State Circuits and as the Chairman of both the International Solid-State Circuits Conference (ISSCC) and the Symposium on VLSI Circuits. He is also a past Chairman of the IEEE Solid-State Circuits and Technology Committee, and he has been a member of the IEEE Solid-State Circuits Society AdCom, the IEEE Solid-State Circuits Council, the IEEE Circuits and Systems Society AdCom, the Executive Committee of the ISSCC, and the Executive Committee of the Symposium on VLSI Circuits. He received the IEEE Journal of Solid-State Circuits 2002 Best Paper Award, and he was recognized for his Outstanding Contributions to the Technical Papers of the International Solid-State Circuits Conference on the occasion of the conference's fiftieth anniversary. He was a recipient of the IEEE Third Millennium Medal, he received the Outstanding Alumnus Award from the EECS Department at the University of California, Berkeley in 2003, and he is the 2005 recipient of the IEEE Solid-State Circuits Award. He has published more than 140 technical articles and is a co-author of *The Design of Low-Voltage, Low-Power Sigma-Delta Modulators and Design and Control of RF Power Amplifiers*. He is a coeditor of *Analog MOS Integrated Circuits, II*.

## THURSDAY NOVEMBER 18

### Advanced Energy Meters and Power Quality Monitors

Speaker: Ron Weiss, Electro Industries / GaugeTech

Time: No-host social at 5:30PM; Presentation at 6:15PM; Dinner at 7:15PM; Presentation continues at 8:00PM

Place: Marie Callender's Restaurant - The Garden Room; 2090 Diamond Blvd in Concord near the Concord Hilton Hotel (Call 925-827-4930 for directions)

Cost: \$22 for IEEE members; \$25 for non-members

RSVP: by Nov 17 to Gregg Boltz at [gboltz@brwncald.com](mailto:gboltz@brwncald.com) or phone (925) 210-2571

Web: [www.ewh.ieee.org/r6/oeb/ias.html](http://www.ewh.ieee.org/r6/oeb/ias.html)

The speaker is **Ron Weiss** of Electro Industries/GaugeTech. Ron Weiss has been with Electro Industries/GaugeTech for three years and holds the position of Senior Regional Manager for the Western Division. In this position, Ron supervises all aspects of EIG's business activities, sales, projects and after-sales support.

Prior to joining EIG, Ron was based in Singapore for 16 years where he served in positions as regional sales manager, and managing director for Rochester Instruments with responsibility for the entire Asia-Pacific region. Ron also worked for TRICONEX for six of his 16 years in Singapore, promoting and designing advanced control systems for gas/steam turbines, emergency plant shutdown systems and boiler control systems.

Ron received a B.S. degree in Chemical Engineering from Texas A&M University, a B.A. degree in Biology from the University of Western Connecticut and an MBA in International Business from Oklahoma City University.

Electric energy meters have come a long way since the single-application use as a source of revenue calculations. Today's advanced meters offer capabilities to perform a multitude of tasks simultaneously. In industrial applications, meters are being used to perform many complicated process control functions, monitor power quality, and perform load shedding operations both under manual and automated commands. The goal is to keep energy costs down and improve overall efficiency of the plant. In Utility applications, operating personnel are looking to advanced revenue meters to also provide them with data on systems reliability, as well as with fault analysis capability. These enhancements help improve the utility's service to its customers. Today's energy meters, with on-board intelligence and built-in communications capabilities, provide end users with powerful tools for managing their electric systems more effectively.

This month's presentation will explain how the key features found in advanced energy meters help meet the challenges of today's energy systems. An actual case study will also be presented and examined.



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# SCV Consumer Electronics

## THURSDAY NOVEMBER 18

### Digital Living 2010

Speaker: Gary Sasaki, digdia.com  
Time: 7:00PM Presentation  
Place: HP Oak room, 19447 Pruneridge Avenue  
(Building 48 at Wolfe and Pruneridge),  
Cupertino  
Cost: IEEE Member \$5, non-member \$10  
RSVP: By email to Abhi Dugar at [scv.ce@ieee.org](mailto:scv.ce@ieee.org)  
Web: [www.ieee.org/scvce/](http://www.ieee.org/scvce/)

**Gary Sasaki** was with Hewlett Packard Company for 30 years, most recently in HP Labs - responsible for finding, analyzing and helping to initiate billion dollar new businesses. Previously he was the head of R&D in a division with three #1 worldwide product lines. Gary just formed digdia.com to help companies wishing to enter the Digital Home market. He graduated from UC Berkeley with a degree in EE/CS.

Change is driving new opportunities in the "Digital Home" market. "Digital Living 2010" gives a strategic overview of some of the forces driving this change, where the market is now, where it is going, some of the roadblocks, and who is involved.



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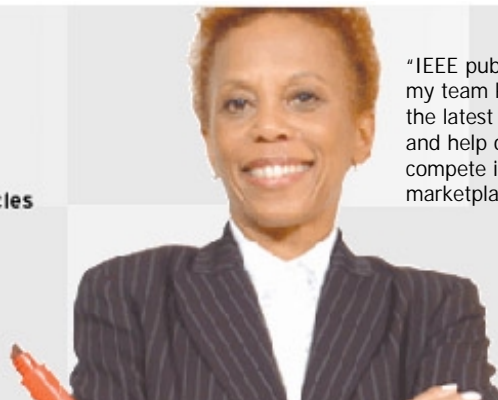
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### Forum:

### From Engineer to Entrepreneur

Speaker: Bill Musgrave, President & CEO, The Enterprise Network of Silicon Valley

### A Sport's Analogy for Managing Personal and Team Performance

Speaker: Christopher H. Pham, Senior Development Manager, Cisco Systems

Time: Forum talk at 6:00PM, Dinner at 7:00PM, After-dinner presentation at 7:45PM

Place: PRIME HOTEL (former Wyndham), 1300 Chesapeake Terrace, Sunnyvale

Cost: By Friday, Dec 3<sup>rd</sup>: \$25 (IEEE member), \$30 (non member), \$5 surcharge thereafter. (Cash or check at the door). Student IEEE members - \$5.

RSVP: through Website: [www.ieee-scv-ems.org](http://www.ieee-scv-ems.org)

Web: [www.ieee-scv-ems.org](http://www.ieee-scv-ems.org)

**Dr. Bill Musgrave** has 25 years of executive experience in both the public and private sectors. Prior to joining TEN in 1999, he was a General Manager for DRS Ahead Technology, a supplier of specialty magnetic heads, engaged in corporate acquisitions and business development. He was also on the founding team for an e-commerce startup.

Formerly, Bill was a career U.S. Navy officer, completing his military service at the rank of Captain. In the Navy, he managed large-scale business and logistics operations, and was integrally involved in the formulation and implementation of major government procurement reform initiatives.

Dr. Musgrave maintains an active involvement in higher education and has led the initiation of an entrepreneurship center at San Jose State University and has been on the adjunct faculty of a number of universities. He is also a frequent speaker at professional events on entrepreneurship and innovation, and organizational leadership. He has been featured in numerous news journals, and has appeared on BBC Worldwide Broadcast, Silicon Valley Business Radio, and at the Commonwealth Club of San Francisco. He has lectured overseas.

Bill earned the MBA and Doctor of Business Administration degrees from The George Washington University's School of Business and Public Management. He holds a B.S. in Education degree from Texas State University.

### *Before-Dinner presentation -*

### **From Engineer to Entrepreneur**

Get the big picture in entrepreneurial trends, including risks and rewards, from someone who knows. Bill Musgrave shares his experiences as president and CEO of The Enterprise Network, TEN, a nonprofit organization that is an incubator for technology and a place where entrepreneurs launch great companies. We are not all created equal, so it is key to understand the different types of entrepreneurs and ventures, as well as the qualities of a successful entrepreneur. Be sure to take a personal inventory of your skills to ensure the right fit, rather than generalize on the strengths and weaknesses of entrepreneurs. The importance of the entrepreneurial team will be emphasized, as well as helpful resources available to would-be entrepreneurs.

The ability to identify business opportunities will be discussed as part of this practical talk. Many helpful tips will be shared for getting started, when you are actually ready to take the plunge and move from engineer to entrepreneur. Come learn if you are ready to go out on your own and be an entrepreneur or find out if you are better suited to stay within an established company and find a way to use your entrepreneurial skills.

### *After-Dinner presentation -*

### **A Sport's Analogy for Managing Personal and Team Performance**

Improving personal and team performance is the main focus of sports management. Many similarities exist in the high tech industry with high demand for creativity and higher productivity, which translates into higher personal and team performance. We would like to share our experience from our management ABC-GOAL-FIRST strategy and S-I-R Business Operation Model that we used from 2001 to 2004. The creative strategy which focuses on personal and team performance improvement based on the same analogy of sports management has helped expand our team's charter from a regression facility at the tail end of the software life cycle to a bigger company-wide scope. The expanded charter allows the team to be involved in all phases of the software life cycle collaboratively and cross-functionally to maximize our contribution while leveraging other organizational expertise. We also would like to share the analysis, the metrics and the positive human affect of the proven management

strategy that helped to increase our team's productivity by six folds during the past four years.

Christopher H. Pham is an IEEE senior member. He has 17 years of high tech experience, 9 years teaching at university and 5 years at vocational institutions, 4 years management at Cisco Systems, Inc. and other 2 years in general management. Christopher was the co-founder of KSVN Webcasting and MIADS Systems in the 1990's before he became a Senior Development Manager at Cisco Systems Inc., based in San Jose. Christopher received many Executive Awards, authored many technical papers on prestigious publications and was featured on international and local news stations (VOA, AM1430, AM1500). He is the Cisco nominee for the 2005 Asian American Engineer of the Year Award.

Christopher H. Pham has been a part-time faculty in the Electrical Engineering Department, SJSU since 1997. He also conducted software and computer engineering courses at CompE Dept., SJSU and Evergreen Valley College between 1995 and 1999. He is teaching as a hobby and as a part of his community services.

## CONFERENCE CALENDAR

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The **CONFERENCE CALENDAR** is a service to our IEEE Members. It outlines upcoming IEEE workshops and conferences in the Bay Area. Please submit items to the GRID Editor: [editor@e-grid.net](mailto:editor@e-grid.net).

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EBIG.org presents:

15th Annual

# East Bay Entrepreneur's Capital Conference

*where entrepreneurs and enterprise meet*

**Date:** Friday November 19, 2004, 8 AM – 6:30 PM

**Cost:** \$45 (\$35 for EBIG Members)

**Location:** Oakland Marriott, 1001 Broadway, Oakland

## 8:00-9:00 am **Registration & Networking**

Continental breakfast

## 9:00-9:10 am **Welcome and Brief Remarks**

Bill Lambert, City of Oakland

## 9:10-9:40 am **Kickoff Address Keynote Speaker**

**Larry Read**, Oil Changers, Entrepreneur extraordinaire and winner of the coveted Ernst & Young Entrepreneur of the Year Award.



The 15th annual East Bay Entrepreneur's Capital Conference focuses on emerging growth companies located in Alameda and Contra Costa Counties. Many high technology and other rapidly expanding East Bay companies have flourished and grown since the inception of this Conference. The 15th annual EBEC intends to facilitate this growth by bringing entrepreneurs and their companies together with the financial resources and professional guidance necessary to achieve success.

### **"Start-up" Track:**

9:45-10:45 AM: **"Laying the Foundation"** You'll leave this session knowing what fundamentals on your check list you need to be preparing for, and learn such tips as where to find cash, free help and resources, and how to develop an effective business plan.

Moderator: **Romanus Walter**, Entrepreneur Magazine's Success Coach and the Kick Start Guy

11:00-Noon: **"Fueling Early Stage Growth"** Family/Friends and Angel Financing, Creative Debt Financing, Bootstrapping, more. Listen as our panel of experts show how they squeeze money out of turnips. Everyone's answer is unique, but our experts will show you how to be smart about feeding your early growth.

Moderator: **David Charron**, Tech Ventures Corporation, Lester Center for Entrepreneurs

### **"Later-Stage Business" Track:**

9:45-10:45 AM: **"Acquiring Profitable Customers"** Obtaining beta clients, landing the large corporate clients, strategic partnerships, selling to the government. Learn how to turn cold calls into warm calls, retain customers through loyalty programs, perfect a winning sales pitch, close deals quicker and build the right sales team.

### 11:00-Noon: **"Accessing Expansion Capital"**

A leading expert in growth stage funding, an Investment Banker, and a VC who's helped raise millions provide information to help you overcome financing hurdles. Learn where to find pools of capital and small business loans, how to attract the attention of angel investors and how to utilize creative capital-raising strategies

## 12:00-1:30 pm Luncheon Keynote Speaker

**Guy Kawasaki**, Garage.com founder and author of "The Art of the Start"



## 1:30-3:00 pm Keynote Panel:

### **"The A to Z of Funding Your Company"**

Moderated discussion of financing options for start-ups and growth companies featuring a panel of finance specialists from various funding sources.

## 3:00-4:00 pm **Company Presentations**

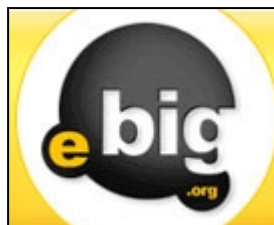
Presentations by 4 companies, critiques & helpful insights by panelists.

## 4:30-6:30 **Technology Showcase and Reception**

Company Booths / Networking

## 6:00 pm Award Presentation

**"East Bay Entrepreneur of the Year"**



Organized by the  
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To register, see the list of exhibitors, scan the full program and listing of panelists, or download a Map, visit:

[www.ebig.org/events/ebec/](http://www.ebig.org/events/ebec/)

To Exhibit at the Conference, contact Kristen Kuhns, [kristenk@ebig.org](mailto:kristenk@ebig.org) Tel: 925-577-8454 Fax: 866-743-3860