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December 2004

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Chapter Meetings

SCV-Ed - 12/1: **Engineering Innovation for the 21st Century** - an educational perspective related to information technology, biotechnology and nanotechnology ... **[more]**

SCV-LEOS - 12/7: **How to Improve Your Image: It Ain't Magic ... or is it?** - the interesting, subtle and revealing aspects of optical system design, both science and art ... **[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]**

SCV-COM - 12/8: **A Cellular Wi-Fi Mesh Network for Broadband Data** - combining the best features of cellular and Wi-Fi technologies with mesh networking protocols for metro-scale applications ... **[more]**

SCV-CPMT - 12/8: **Replacing Heat Sinks with Thermally Conductive Substrates -- Technology and Tradeoffs** - advantages and applications of substrate constructions that eliminate the need for heat sinks ... **[more]**

SCV-MTT - 12/9: **Surface-Mount 2 GHz 30W Power Amplifiers Blend Thick-Film Hybrid and Chip-and-Wire Technology for Communications Infrastructure Applications** - low-cost hybrid PA modules with aggressive performance requirements ... **[more]**

SCV-SP - 12/13: **Reconfigurable Systems Emerge** - new programmable logic devices based on next-generation non-volatile memory will enable efficient reconfigurable systems ... **[more]**

SCV-CNSV - 12/13 & 12/27: **Entrepreneurs SIG** - this SIG is part of the Consultants' Network of Silicon Valley, and meets on second and fourth Mondays ... **[more]**

SCV-CNSV - 12/14: **Taxes and Their Changes in 2005 for Independent Consultants** - recent changes to the tax laws, choice of "S" Corporation status and other issues plus questions and answers on tax or financial topics ... **[more]**

Upcoming Courses in the Bay Area

Transitioning From Individual Contributor to Manager
1-day class with Dr. Andrew Oravets -- at Exar (Fremont), December 9. **[more]**

Reliability Engineering
6 week course, beginning January 11. Reliability Mgmt - Probability and Statistics - Modeling and Prediction - Maintainability and Availability - Reliability Testing - Product Liability **[more]**

Intelligent Control & Soft Computing -- Neural Networks, Fuzzy Logic, Genetic Algorithms
three-day class from top experts, at NASA Research Park - how to design and apply fuzzy logic and neural networks techniques **[more]**

At San Jose State, week of Jan. 18th:
- **DSP System Design and Implementations**
- **FPGA DSP System Design**
- **VHDL for Synthesis and Verification**
- **Device Physics and VLSI Technology**
- **Sensor Network Technology**
Theory and labs in current technologies **[more]**

News

All Members should have received their ballots for election of Section Officers for the 2004 calendar year. Check your email inbox, make your selections, and return by email. Those without an email address on file with IEEE have received a printed ballot in the regular mail. Please be sure to return it by the deadline (Dec. 10).

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.

IEEE GRID is published as the **GRID** Online Edition residing at www.e-GRID.net, and in a handily printable **GRID.pdf** edition, and also as the **e-GRID** sent by email twice each month to more than 24,000 Bay Area members.

From the editor . . .

Our cover photo this month is of Carmel Bay at sunset, with the Pacific fog sitting offshore. This is typical of the winter months along the coast – the fog tends to stay offshore, with warm sunshine during the day. This contrasts with summer, when the rising hot air over the Salinas Valley sucks in the fog, and most days are therefore foggy and breezy.

If you are in the position of re-inventing your career and preparing for future opportunities, then the courses offered by San Jose State's Electrical Engineering department will be of interest. The first five courses are set to start on January 18th (see the **one-page description**), and three of them have extensive "hands-on" labs as part of the instruction. Future series are being planned with leading-edge engineering careers in mind. Since engineering is a career of life-long learning, it is critical for all engineers to be ready to re-invent their skills and capabilities. Each of us will likely have several such "re-inventions" during our working years.

Paul Wesling **editor@e-grid.net**

UNIVERSITY OF CALIFORNIA, SANTA CRUZ
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/. 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. 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/.

IEEE Professional Skills Courses

Transitioning From Individual Contributor to Manager

Date/Time: Thursday, December 9, 8:30AM-4:30PM
Instructor: Dr. Andrew Oravets
Location: Exar Corporation, Fremont
Fee: $350 for IEEE Members; $425 non-members

The transition from individual contributor to manager can be the most challenging shift of a career. Management demands a deeper appreciation of the impact of one's style and greater flexibility in order to be able to deal with a variety of people. This program is designed to introduce prospective or newly promoted managers in a technical environment to the concepts and skills critical to a successful assumption of leadership.

Key Topics: Identify the main challenges in moving from contributor to manager – Learn to "let go" of technical issues and focus on management goals – Analyze leadership transactions – Management "operating styles" – Make powerful requests – How to leverage your strengths – Key values of effective leaders – Achieve and maintain a leadership orientation

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

"Very Good! I learned a lot about myself, my strengths and weaknesses as a manager, and have more confidence about my abilities. Andrew obviously had a great deal of experience to share."

**Improve your skills – register today.
Bring a team!**

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

www.cpmt.org/scv/

Santa Clara Valley K-12 Program

Contact : **David Fong**, daffy@ieee.org, (510) 687-4507

Come to our **K-12 Committee Meetings –** held once a month on Tuesdays during lunch at Silicon Valley Technical Institute. Come join us! We'd love your assistance on some of our projects this year:

Book Sorting (December 2004) Six IEEE volunteers are needed to sort books in December to be given out to local schools. We hope to distribute 2000-4000 books to needy children in grades K through 12. Cash and new-book donations in fiction and non-fiction are welcome. Contact David for details.

Engineer's Week (Feb 20-26 2005)
National website : www.eweek.org
Local registration website : www.svec.org/discover.html
Local Contact : David Levinson
david.levinson@lmco.com (650) 424-2658

Science Fair Judges (March 2005)
Come give us a hand! Contact David for arrangements.

Westmont High School Computer Club
Need individuals, companies or foundation to sponsor lego robotics team to participate in Botball at the $2000 level. Even small donations are accepted to help us get matching donations.

Teacher/student technology training:
We need individuals, companies or a foundation to support training of local Santa Clara Valley teachers in the subject of electricity. Trained teachers will then instruct our children to help them meet State of California standards. Donations to fund materials to build kits are appreciated.

Reduce your 2004 tax bills...
by donating stocks or cash to support local IEEE programs that support needy Santa Clara Valley schools. Contact : David Fong. Send your stocks or checks as shown at: www.ewh.ieee.org/r6/scv/k-12/funding.html

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OPS ALACARTE™

Reliability Engineering Services
HALT and Classical Techniques
"Reliability Integration" SM

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 11th, 2005

Instructor: Jurek Zarzycki, CRE, CQE
Schedule: Eight consecutive Tuesdays 6 - 10 PM from
         January 11th through March 1st, 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
         or call (408) 472-3889

January Technology Series

- **Theoretical Aspects**
- **Hands-on Experience**
- **For working professionals**
- **Preparation for Tomorrow**
- **Excellent value; practical; timely topics**
- **5 Choices, all in the week of January 18, 2005**

Department of Electrical Engineering
COLLEGE OF ENGINEERING
gateway to **Silicon Valley**

San José State UNIVERSITY

Review the full course Flyer:
www.e-grid.net/docs/sjsu.pdf

for course overviews, prerequisites, instructor profiles, registration, map

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Digital Signal Processing -- 4-day class with labs:

DSP System Design and Implementation

Overview: Today's technology provides DSP processors that can be easily used to design very sophisticated products for instrumentation, control systems, communications, and wireless systems. This course presents DSP system design and implementation using programmable signal processors. Hands-on laboratory exercises are used to present the design and implementation aspects, using hardware and software tools for system implementation. The 5 laboratory sessions follow the lectures, where participants will apply system design concepts by designing, implementing, debugging and evaluating DSP schemes.

Digital System Design -- 4-day class with labs:

FPGA DSP System Design

Overview: This course provides an in-depth and state-of-the-art coverage of the design and FPGA-based implementation of high-performance DSP systems. After presenting FPGA architectures and design tools by Xilinx and Altera, several hands-on design labs on DSP, digital communications and video/imaging will be covered, including FFT, FIR filters, error detection/correction circuits, modem, color space converter, and DWT (Discrete Wavelet Transform). Contents: Basic DSP/Communication theory, FPGA architecture/design tools, HDL (VHDL and Verilog), DSP-specific arithmetic circuits, hardware design of digital filters, FFT circuits, error detection & correction circuits, encryption/decryption circuits, and video/imaging circuits.

Digital Design -- 4-day class with labs:

VHDL for Synthesis and Verification

Overview: An in-depth study of VHDL methodologies, coding styles and design techniques used to efficiently synthesize and test digital hardware (ASICs and FPGAs), then VHDL structures and simulation, and finally test-bench and verification. Synthesis topics focus on mapping digital hardware structures to vendor-independent VHDL code, with do's and don'ts of coding styles. Students will learn proven coding practices that result in smaller and faster design. The Laboratory runs Synopsys's Design Analyzer and Design Compiler and Xilinx's ISE for design, synthesis and verification of a non-trivial digital subsystem with bus and control signals. Students start with simple test benches and progressively increase the level of abstraction. Students will learn how to correctly model and abstract behavior and simplify testbenches with subprograms. The final result is a transaction based, system-level, self-checking test environment.

Come to San Jose State!

Easy access: class starts before most students arrive on campus, so parking in the 7th Street garage is a snap!

Cost: $995 per course (includes student notebook, lunches and refreshments, CDs with class notes and problem solutions for certain classes)

Microelectronic Device & Technology -- 4-day class:

Device Physics and VLSI Technology

Overview: This course presents an introduction to the basic concepts of microelectronic structures, from the PN junction to BJT and MOSFET devices. The physics of device performance is discussed in some detail. Modern device fabrication technology is covered, including fabrication principles for semiconductor devices, crystal growth, epitaxy, lithography, scaling, and etching. Critical technologies in IC fabrication are related to the performance of the resultant devices.

Networking Engineering -- 3-day class:

Sensor Network Technology

Overview: A sensor network is a number of sensors such as chemical, biological or solar sensors that are networked together in a certain fashion to strengthen the power of sensing. Such a network can be wired or wireless, depending on where and how the sensors are used. The applications of sensor networks can be military or civilian. In the military field (the battlefield of the future for instance) a network of sensors enables soldiers to see around corners and to sense the threat of chemical and biological weapons long before they get close enough to cause harm. Sensor networks can also be put to legions of civilian uses, such as environmental monitoring, traffic control, and health care monitoring for the elderly that allows them more freedom to move about.

The course focus is on architectures, protocols, hardware aspects, and other related issues such as scalability, fault-tolerance, and security. The basic concept is to deploy a large number of low-cost and self-powered sensor nodes that acquire and process event data, then alert users to take necessary action. A base-station monitors and controls cluster networks and chooses a cluster head (gateway) for each cluster through which the cluster data is collectively routed to the base-station. Sensor networks are constructed with a stack of five layer protocol: physical layer, data link layer and MAC sub-layer, network layer, transport layer, and application layer.

Three-day Short Course:

Intelligent Control & Soft Computing –
Neural Networks, Fuzzy Logic, Genetic Algorithms

- Dates: February 1-3, 2005
- Location: NASA Research Park, Moffett Field
- Instructors: **Lotfi Zadeh**, Ph.D., UC-Berkeley; **Kevin Passino**, Ph.D., Ohio State Univ; **Hamid Berenji**, Ph.D., IIS Corp.

Traditional (hard) computing methods do not provide sufficient capabilities to develop and implement intelligent systems. Soft Computing is a subfield of artificial intelligence that is tolerant of imprecision, uncertainty, and partial truth. Soft Computing and Computational Intelligence methods have provided important practical tools for constructing intelligent systems.

This course has been presented at several NASA locations including NASA Marshall and NASA Glen as recently as June 2004. At the completion of this course you will have a full understanding of the benefits of intelligent control, neural networks, fuzzy logic inference, and genetic algorithms. You will have learned significant details about their successful applications and you will have developed the necessary knowledge to design and apply these techniques to your particular applications.

Key Topics: Learn how to design and apply fuzzy logic and neural networks techniques -- Understand the fundamental concepts -- Gain important knowledge about recent developments -- Obtain information about available software and hardware tools -- Explore a wide range of applications

Who Should Attend? Engineers, technical managers, project leaders, scientists, system analysts, and others interested in fuzzy logic, neural networks and intelligent systems.

> "The Soft Computing Days seminar was fantastic! Three of us attended as a group and each of us came back with the seeds of a major soft computing project. I was so taken with Lotfi Zadeh's talk, that I went back and completely redesigned a fuzzy logic expert system for tactical asset allocation. Thanks for a great conference!"

Cost: $975 (includes class notes and refreshments)

Registration and more information: On the class website: **www.iiscorp.com/courses/**

WEDNESDAY December 1

Engineering Innovation for The 21st Century

Speaker: Sung-Mo "Steve" Kang, Dean, Baskin
School of Engineering and Professor of
Electrical Engineering, UCSC
Time: 6:45 pm - free light dinner and Presentation
Place: Silicon Valley Technical Institute, 1762
Technology Drive, Suite 227, San Jose
RSVP: to Charytin at charytin@svtii.com,
408-573-0100
Web: www.ewh.ieee.org/r6/scv/es/

In this talk Prof. Kang will present an educational perspective on 21st-century innovations related to information technology, bio-technology, and nano-technology. The outcome of some recent research in these areas will be briefly discussed, including societal-scale IT systems, bio-nanosensors, bio-informatics, and bio-electronics. We will then discuss interdisciplinary and transdisciplinary aspects of engineering education that can promote innovative holistic practices with global awareness and leadership.

Prof. Kang is Dean of the Baskin School of Engineering and a Professor of Electrical Engineering at U.C. Santa Cruz.

San Jose State University
Electrical Engineering Department
Microelectronic Device & Technology -- 4-day class:

Device Physics and VLSI Technology

Overview: This course presents an introduction to the basic concepts of microelectronic structures, from the PN junction to BJT and MOSFET devices. The physics of device performance is discussed in some detail. Modern device fabrication technology is covered, including fabrication principles for semiconductor devices, crystal growth, epitaxy, lithography, scaling, and etching. Critical technologies in IC fabrication are related to the performance of the resultant devices.

Starts Tuesday, January 18, 2005

More Details:
www.e-grid.net/docs/sjsu.pdf

How to Improve Your Image:
It Ain't Magic ... or is it?

Speaker:	Robert E. Fischer, CEO, Optics 1 Inc.
Time:	Networking and Pizza Social at 7:00 pm, Presentation at 8:00 pm
Place:	National Semiconductor Credit Union Auditorium, 955 Kifer Road, Sunnyvale
Special:	Family (spouse, kids) are invited for the magic show!
RSVP:	to Ram at ramsivaraman@ieee.org with number of attendees
Web:	ewh.ieee.org/r6/scv/leos/

Robert E. Fischer holds a BS and MS in Optics from the University of Rochester. Mr. Fischer's technical interests are in optical system design and engineering, in particular lens design. He is also interested in optical component and system manufacturing, assembly, and testing. His interests extend from the deep UV through the visible and on to the thermal infrared. An inventor holding five patents (with others pending), Mr. Fischer is also an author and short course instructor teacher. His recent book **Optical System Design**, published by McGraw-Hill in 2000, is in its second printing.

Mr. Fischer is a Past President of SPIE (1984). He has also served as Editor of SPIE's monthly newspaper **OE Reports** for 15 years. Additionally, Fischer has authored numerous technical papers covering a wide range of subjects in the field of optics. He has also chaired many SPIE conferences relating to optical design and engineering in the U.S. and Europe including that has been part of the Annual Meeting for nearly 10 years. Since 1978 Fischer has taught SPIE short courses on optical design and engineering, optical design for the infrared, optics for head mounted displays, and in other related topics. Fischer also has chaired and served on SPIE committees including the Symposia Committee, Membership Committee, Scholarship Committee, Awards Committee, and the Presidents Advisory Committee. He is currently Treasurer of SPIE. Robert E. Fischer was awarded the SPIE Gold Medal for the year 2000, the Society's highest technical honor. And in 1986 he won the SPIE Albert M. Pezzuto Award for exceptional leadership and service to the society. He is also a Fellow and Life Member of SPIE and a Fellow of the OSA.

Family (spouse, kids) are invited for the magic show!

This talk will be a fast-paced journey through many interesting and revealing aspects of optical system design. We will introduce you to some of the many fascinating and important subtleties of our field, and you will learn why optical design is in many cases both a science and an art. Some of the topics to be discussed:

- Image degradations or aberrations, what they are and how to get rid of them.
- Optical configurations and design tradeoffs
- Optical design for different spectral bands
- High performance for optical systems
- Off the shelf versus custom optics

We will also discuss the **Bob Fischer list of Bloopers and Blunders in Optics**. Each item has a succinct lesson to be learned.

As a special feature, Bob, a member of the Magic Castle in Hollywood, will treat you to his favorite magical illusions along the way, many of which are true classics of magic. Bring the kids to this family gathering!

San Jose State University
Electrical Engineering Department
Digital Design -- 4-day class with labs:

VHDL for Synthesis and Verification

Overview: An in-depth study of VHDL methodologies, coding styles and design techniques used to efficiently synthesize and test digital hardware (ASICs and FPGAs), then VHDL structures and simulation, and finally test-bench and verification. Synthesis topics focus on mapping digital hardware structures to vendor-independent VHDL code, with do's and don'ts of coding styles. The Laboratory runs Synopsys's Design Analyzer and Design Compiler and Xilinx's ISE for design, synthesis and verification of a non-trivial digital subsystem with bus and control signals. Students start with simple test benches and progressively increase the level of abstraction. The final result is a transaction based, system-level, self-checking test environment.

Starts Tuesday, January 18, 2005

More Details:
   www.e-grid.net/docs/sjsu.pdf

WEDNESDAY December 8

Replacing Heat Sinks with Thermally Conductive Substrates -- Technology and Tradeoffs

Three Presentations:

- **Stablcor - a technology that controls CTE**
- **Thermal Clad**
- **Thermagon**

Speakers: Three Industry Speakers (Thermal Clad, Thermagon, and Stablcor)

Time: Seated dinner at 6:30 ($25 if reserved before Dec 5; $30 after & at door; vegetarian available)

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

RSVP: to Allen Earman, allen.earman@finisar.com

Web & Map: www.cpmt.org/scv

StablCor Technology: As the electronics industry continues to move in the direction of increased processing power in smaller packages, thermal solutions have become essential. Among many current designs in the market, thermal management issues come into play as high performance components such as ASICs or CPUs create "hot spots" on the Printed Circuit Board. These hot spots result in decreased component life and can, in extreme cases, result in component failure. Stablcor technology can help in reducing junction temperatures by acting as a heat spreader or heat sink. It can also help to increase product reliability by contributing to its ability to tailor CTE, substantially increase the stiffness and give a substantial weight reduction compared to some of the heavy metal solutions like Heavy Copper, Copper-Invar-Copper (CIC), Copper-Moly-Copper (CMC), Thermal Clad and other Metal core technologies. This talk will discuss a cost effective technology -- STABLCOR -- which reduces temperatures of electronic components, provides a CTE range from 2.5 ppm to 12 ppm, and reduces warpage with increased stiffness at no weight premium.

Don Roy is one of the founders of ThermalWorks. Currently, Mr. Roy is serving as Executive Vice President of Marketing heading up partnerships, licensing, and sales efforts for the Stablcor line of thermally advantaged PCB technology. Mr. Roy's experience in high performance technologies and mission critical electronics provides broad scope expertise to select and guide Stablcor licensees in what is expected to be a worldwide shift from traditional FR-4 PCB's to Stablcor based PCB's. Prior to his current position, Mr. Roy was President and Chief Operating Officer of Ramtek from 1996 through 2000 where he worked with high performance stacked die to enable high density memory modules.

Kris Vasoya is one of the original founders of ThermalWorks and is credited as the inventor of ThermalWorks signature Stablcor technology. Mr. Vasoya currently serves as ThermalWorks Executive Vice President of Engineering & Technology, overseeing integration with new licensees, product testing, and new product development. Kris Vasoya's vast expertise in material sciences and viable applications has been a primary driver in reducing the development cycle of ThermalWorks revolutionary Stablcor technology as well as speeding up design time on new applications utilizing Stablcor material for critical "time-to-market" product roll-outs. Mr. Vasoya has also authored a series of extensive design guidelines on electronic product designs utilizing Stablcor that are now considered invaluable handbooks by major defense and aeronautics engineering departments from around the world. Prior to his current work with ThermalWorks, Mr. Vasoya served as the Engineering/Project Manager for seven years at SDC, a printed circuit board manufacturer servicing the military and commercial markets. Kris Vasoya's work leading engineering teams and manufacturing teams has helped provide much of the groundwork for "practical & viable for manufacturing" development. He completed his BS (1994) Degree in Mechanical Engineering at Sardar Patel University, India.

WEDNESDAY December 8

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 3rd: $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

Web: 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

WEDNESDAY December 8

A Cellular Wi-Fi Mesh Network for Broadband Data

Speaker: Narasimha Chari, Founder and Chief
Architect, Tropos Networks
Time: 6:00 p.m. (pizza & soda),
6:30 p.m. presentation
Cost: Free ($1 donation to partially cover food
cost)
Place: National Semiconductor Credit Union,
Bldg. 31, 955 Kifer Rd., Sunnyvale
RSVP: to rsvp@comsocscv.org
Web & Map: www.comsocscv.org

This talk will describe a network architecture that combines the best features of cellular and Wi-Fi technologies with mesh networking protocols to create high capacity, uniform coverage networks for metro-scale applications. The resulting network delivers a high throughput to the end-user along with deployment flexibility, scalability, and the ability to react and respond to failures. It will also present a few real-world examples of Cellular Wi-Fi mesh networks in action.

San Jose State University
Electrical Engineering Department
Digital Signal Processing -- 4-day class with labs:

DSP System Design and Implementation

Overview: Today's technology provides DSP processors that can be easily used to design very sophisticated products for instrumentation, control systems, communications, and wireless systems. This course presents DSP system design and implementation using programmable signal processors. Hands-on laboratory exercises are used to present the design and implementation aspects, using hardware and software tools for system implementation. The 5 laboratory sessions follow the lectures, where participants will apply system design concepts by designing, implementing, debugging and evaluating DSP schemes.

Starts Tuesday, January 18, 2005

More Details:
  www.e-grid.net/docs/sjsu.pdf

Narasimha Chari is Founder and Chief Architect of Tropos Networks. Along with Mr. Devabhaktuni, Mr. Chari was responsible for developing Tropos Networks' core intellectual property, including the design and development of the company's wireless networking and routing protocols. Currently, he focuses on system and product architecture, product planning and advanced development. Prior to founding Tropos, Mr. Chari was a research scientist at Harvard University where he was recognized as a top lecturer and received the White Prize for excellence in teaching. He has performed research, published papers and disclosed patents in a variety of areas of mathematics, physics and wireless networking. Chari holds a BS in Mathematics and Economics from the California Institute of Technology and an AM in Physics from Harvard University. He is a member of the IEEE Communications Society, IEEE Computer Society, IEEE Standards Association and the Association for Computing Machinery.

(Continued, from previous page – EMS)

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.

THURSDAY December 9

Surface-Mount 2 GHz 30W Power Amplifiers Blend Thick-Film Hybrid and Chip-and-Wire Technology for Communications Infrastructure Applications

Speaker: Dr. E. James Crescenzi, Jr., Principal Scientist, Cree Microwave Corp

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: none required

Web: www.mtt-scv.org

This presentation will review the development of low-cost hybrid PA modules with aggressive performance requirements for DCS, PCS and UMTS frequency bands. This work has involved several contributors in packaging, power transistor, and microwave circuit disciplines. It began with 2-stage 20W modules using a classic quadrature hybrid balanced amplifier architecture, and then progressed to a 2-stage 30W design involving single-ended stages with interstage, input, and output matching in small packages. The 30W design offers the best "Dollars-per-Watt" figure-of-merit, and has been qualified and produced for infrastructure applications. The electrical design issues and details of the surface-mount package design will be covered. These 30W amplifiers are relatively efficient and the associated channel temperatures are low (as IR scan data demonstrates). The technology has the potential for application at much higher power levels.

Dr. E. James Crescenzi received his BS from UC Berkeley, and his graduate degrees from the University of Colorado. He worked at Watkins-Johnson Co. for 27 years, primarily on components and receiver subsystems for defense applications. He joined Spectrian in 1997, where he developed linear high power amplifiers for wireless infrastructure applications. He transferred in 2000 to the division that later became Cree Microwave, where he has focused on PA module development. Jim is a familiar face to bay area microwave engineers. He chaired the SC MTT-S chapter in 1981-2 and was president of the MTT-S in 1994 and chair of the International Microwave Symposium held in San Francisco in 1996. He is a Fellow of the IEEE.

San Jose State University
Electrical Engineering Department
Networking Engineering -- 3-day class:

Sensor Network Technology

Overview: A sensor network is a number of sensors such as chemical, biological or solar sensors that are networked together in a certain fashion to strengthen the power of sensing. Such a network can be wired or wireless, depending on where and how the sensors are used. The applications of sensor networks can be military or civilian. In the military field (the battlefield of the future for instance) a network of sensors enables soldiers to see around corners and to sense the threat of chemical and biological weapons long before they get close enough to cause harm. Sensor networks can also be put to legions of civilian uses, such as environmental monitoring, traffic control, and health care monitoring for the elderly that allows them more freedom to move about.

The course focus is on architectures, protocols, hardware aspects, and other related issues such as scalability, fault-tolerance, and security.

Starts Tuesday, January 18, 2005

More Details:
www.e-grid.net/docs/sjsu.pdf

SCV Signal Processing

MONDAY December 13

Reconfigurable Systems Emerge

Speaker: Nick Tredennick, PhD
Time: 6:30pm: Fast Food & drinks ($1 Donation
         Recommended), 7:00pm: Presentation
Place: National Semiconductor Credit Union
         Building (Building 31), 955 Kifer Rd.,
         Sunnyvale
RSVP: none required
Web and Map: www.ewh.ieee.org/r6/sps/

Dr. Nick Tredennick has been a dishwasher, Air Force pilot, oil field worker, Navy captain, truck driver, engineer, and janitor. At Motorola he developed the logic and microcode for the Motorola 68000 microprocessor. At IBM's Watson Research Center he designed the Micro/370 microprocessor. He was Chief Scientist at Altera. Nick has founded several Silicon Valley startups and is an investor or member of the technical advisory board of numerous others. He taught at the University of Texas at Austin and U.C. Berkeley, is a Fellow of the IEEE, a registered professional engineer, and represents the IEEE on the Engineering Accreditation Commission.

As the world shifts from tethered to mobile, reconfigurable systems will emerge. After twenty years of progress, the PC is good enough for most consumers. As PC development becomes less profitable, design emphasis shifts to mobile systems such as digital cameras, MP3 players, and cell phones. Mobile systems change the design goal from cost performance to cost-performance-per-watt. Smaller transistors won't help because they are too expensive and they leak too much. The microprocessor, which has held back advances in hardware design for thirty years, won't be the workhorse in mobile systems of the future. Microprocessors and DSPs are unsuitable for mobile systems because instruction-based processing is computationally inefficient and because they use too much energy. Today's memory components are also unsuitable for mobile systems. New programmable logic devices based on next-generation non-volatile memory will enable efficient reconfigurable systems.

Nick is an editor of **Gilder Technology Report** and serves or has served on the editorial advisory boards for IEEE **Spectrum**, for **Microprocessors and Microsystems**, for **Embedded Developers Journal**, and for **Microprocessor Report**. He has published more than fifty technical works, including a textbook, **Microprocessor Logic Design**, and holds nine patents.

SCV Entrepreneurs Special Interest Group

MONDAYS December 13 & 27

Regular Bi-Monthly Meeting

Time: 7 - 9 PM
Place: Girvan Institute of Technology,
         3940 Freedom Circle, Santa Clara
Info: For further information contact
         Art Rahman, Chair of IEEE CNSV, at
         ataur.rahman@worldnet.att.net
Directions: www.girvan.org/cus/php/contactus.php

The Entrepreneurs SIG – a part of the Consultants' Network of Silicon Valley – meets on the second and fourth Mondays of each month. You are invited to attend and participate.

For specific information, please contact the SIG chair, Art Rahman: ataur.rahman@worldnet.att.net

Taxes and their changes in 2005 for Independent Consultants

Speaker: Jerry Slade, Tax Masters
Time: 7:00 PM
Place: Sunnyvale Sheraton Hotel
RSVP: none required
Web: www.e-grid.net/docs/0412-cnsv.pdf

Income tax filing can be intimidating for all of us and the self employed engineering consultant is no exception to the rule. As 2005 approaches, recent changes to the tax laws, employee vs Independent Contractors and recent moves by the EDD and choice of "S" Corporation status as an entity of choice for Consultants become issues of significance.

In this talk, Jerry Slade will be addressing these issues as well as addressing open questions and answers on any tax or financial topic. The IEEE Consultants Network will also be holding our Annual Meeting to approve the 2005 Board of Directors.

Jerry Slade is Principal and Founder of Tax Masters in San Jose. He has an MBA and more than 34 years of experience guiding small business owners with the intricacies of tax planning for their business and personal lives. He has had a successful tax practice in California for 33 years and is an Enrolled Agent (one who has been tested and licensed by the Internal Revenue Service to represent taxpayers before them).

TaxMasters specializes in tax preparation and representation as Enrolled Agents since 1971. They specialize in individuals and small businesses, also providing bookkeeping services and the filing of previous years' returns and can perform Offers In Compromise, audit representation, and installment payment agreements

Jerry negotiated the first Offer in Compromise on behalf of a woman who worked for a company that failed to pay its payroll taxes. As a result, the IRS assessed her with over $550,000 in taxes that were settled for $3,000!

Jerry is also a Registered Representative with World Group Securities, Inc. and provides financial services for his clients in the areas of mortgage financing, securities and insurance services.

CONFERENCE CALENDAR

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.

Conferences are also encouraged to purchase display space in the **GRID.pdf** and publicize their events on our website and in our **e-GRID** email notification service. For the Conference Publicity flyer, please download:

www.e-grid.net/docs/conf-flyer.pdf

January 3-6: **Consumer Communications and Networking Conference (CCNC) in Las Vegas**

The demand for networked consumer systems and devices is large – transparent networking for systems and devices for communications, entertainment, and information. Solutions include wireless, wireline, and power line networked communications environments, each with its own strengths and special challenges to overcome. In the not too distant future, we will see ad hoc networking augmented with sensors sharing networked knowledge that enables systems and devices to seamlessly interact with the Internet and wireless systems such as WiFi, 3G, and future 4G networks. A highlight this year is the topic of Digital Rights Management's Impact on Consumer Communications.

CCNC2005 is held this year at the Las Vegas Convention Center, immediately before the 2005 International CES trade show sponsored by the Consumer Electronics Association (CEA). CCNC is sponsored by the IEEE Communications Society (ComSoc). For more information: www.ieee-ccnc.org.