



Dallas Section

Direction

Volume 49, Number 7

March 2006

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From the Chair

by Kaijian Shi

We have many IEEE members who have made contributions to the IEEE. As a way of expressing our appreciation, IEEE Dallas Section will hold an Awards Banquet on April 29th at the Holiday Inn Select in Richardson. Please send your nominations to your chapter chairs.

In continuing to improve IEEE Dallas operations, we organized an IEEE Leadership Workshop on Saturday, February 25th. It was a successful training given by Charles Lord, an experienced IEEE officer who has worked on the IEEE Leadership training program for many years. Twenty-three section and chapter officers attended the workshop and gave positive feedback. The IEEE workshop will help officers run the IEEE section and chapters more successfully.

The first training in 2006, "Fine Tune Your People Skills and Be More Successful at Work" was noteworthy, thanks to Maura Schreier-Fleming (PACE Chair). Fifty-four members attend the training, and we received positive feedback and suggestions for future training. If you have more suggestions, please send them to Maura (maura@Bestatselling.com).

In December, we organized a Sr. Membership Drive where Fellows and Sr. members met and reviewed applicants' application cases and provided supporting references. As a result, an outstanding 45 members in Dallas have been approved for Sr. membership in February. Congratulations! I'd like to thank Vijay Angarai (Membership Chair) and Gerry Burham (Vice Chair) for organizing the event. Thanks also to those IEEE Fellows and Sr. members who came and helped the applicants. We shall organize another Sr. Membership Drive in April.

As a part of our reaching out effort, Bob Shapiro (Administrative Chair) gave a speech on IEEE's Code of Ethics to students at DeVry University. The lecture was very well received.

It was my honor to present, at the Dallas National Engineer Week Ceremony Gala, the "IEEE Dallas Engineer of the Year" to Mr. Thomas C. McDermott (nominated by CVT society) and "IEEE Dallas Young Engineer of the Year" to Mr. Sam David Broyles (nominated by CE society). Felicitations to Mr. McDermott and Mr. Broyles on the much deserved awards.

DALLAS SECTION MARCH 2006 MEETING

"Taking New Technologies to Market: Case Studies and Lessons Learned"

Date: Tuesday, March 14th, 2006 (214) 480-4349
Dinner: 6:30P.M.
Program: 7:00 P.M.

Place: Holiday Inn Select, 1655 North Central Expressway, Richardson, TX

Speaker: Bob Tackett, Managing Partner, Market Force

Please RSVP to Activities Chair Will Lumpkins xillia@ieee.org (214) 543-0858

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Antennas & Propagation (AP)

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Electron Devices (ED)

Chair Zeynep Celik-Butler (817) 272-1309

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Chair Bob Bishop (903) 482-5320

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Chair Open

Laser & Electro-Optics (LEO)

Chair Duncan MacFarlane (972) 883-2165

Microwave Theory & Techniques (MTT)

Chair Danny Balusek (972) 276-6210

Power Electronics (PELS)

Chair Don Marabell (469) 330-9100 x230

Reliability (RL)

Chair Lon Chase (972) 952-3138

Signal Processing (SP)

Chair Nasser Kehtarnavaz (972) 883-6838

Solid State Circuits (SSC)

Chair Xiaopeng Li (214)480-4175

Aerospace & Electronic Systems

"Transmit Antenna Array Techniques for Wireless Communications"

Date: Wednesday, March 22nd, 2006
6:30: Meet & Greet; 7:00pm: program

Place: Holiday Inn Select, 1655 North Central Expressway, Richardson, TX

All our society meetings are free of charge, and open to all interested in attending. Our programs start at 6:30 PM with a social, networking, snack and refreshment period, followed by the program at 7:00 PM. Please mark your calendars and be sure to attend our very informative programs.

Speaker: Dr. Murat Torlak, University of Texas at Dallas

Visit the IEEE AESS Dallas Chapter web site at
<http://ewh.ieee.org/r5/dallas/aes>

For information, please contact Tim D. Reichard (972) 344-7512
Tim_D_Reichard@raytheon.com, Boyd Gallatin (903) 457-6689
Boyd.Gallatin@L-3Com.com, or Mark Gober (903) 457-5122 Mark.D.Gober@L-3Com.com

Antennas & Propagation

For additional information visit our website at <http://ieeedallas-aps.org> for comments contact Ken Tallent, (972) 952-3702, ktallent@raytheon.com

Circuits & Systems

Please visit our Website listed below for latest updates, abstract of talk and seminar details <http://ewh.ieee.org/soc/cas/dallas/>

Communication & Vehicular Technology

Meeting details for Communication & Vehicular Technology Dallas Chapter can be found on their web site. Visit <http://www.cvt-dallas.org/>

Computer

Date: Friday, March 24th, 2006
Lunch/Chapter business: 11:30 AM – 12:00 P.M.
Program: 12:00 - 1:00 P.M.

Cover: Free for both members and non-members
(RSVP by March 20th)

Place: 12500 TI Boulevard, Conference Rooms S1 & S2

Speaker: Andrew J. Piziali, Verification Application Specialist, Cadence Design Systems

Program Summary: In today's fast-paced electronics market, time to first-pass, fully functional silicon is the ultimate determinant of financial success. Functional verification typically ends up being the most unbounded problem in the flow. While teams struggle with verification, the root cause of this struggle is the lack of a comprehensive verification plan and automation of the verification process that leverages the plan. This paper describes the problem and presents an approach to verification planning which leads to a high quality plan. It concludes with an example of verification automation, specifically highlighting the connection to an executable verification plan.

Andrew Piziali is an industry veteran design verification engineer with 22 years experience verifying mainframes, supercomputers and microprocessors with StorageTek, Amdahl, Evans and Sutherland, Convex Computer, Cyrix, Texas Instruments, Transmeta, Verisity and Cadence. Having an avid interest in coverage-driven verification, in 2004 he authored the book *Functional Verification Coverage Measurement and Analysis*. Andrew is currently employed by Cadence Design Systems, focusing on verification planning.

Remember to visit <http://chapters.computer.org/dallas/> for updates, to download presentations, or view upcoming calendar!

Consultants Network

"Legal Aspects of Starting a Business"

IEEE Dallas Section Direction/March 2006

Date: Monday, March 13th, 2006,
Social/Networking/Dinner 6:15 pm
Program 6:45 pm.

Cover: \$5 for IEEE Members, \$15 for non-IEEE Members/Guests (includes light supper buffet)

Place: Holiday Inn Select, 1655 North Central Expressway, Richardson, TX

Speaker: Terry L. Traveland, Esq.

Program Summary: How to choose an attorney, what to look for in an attorney, working with an attorney, Intellectual Property, and how to minimize liability.

Terry L. Traveland is a graduate from Southern Methodist University and attendee Baylor School of Law where he attained his J.D. In May of 1994 he was admitted into the Texas Bar and since he has spent 1 ½ years as a commercial litigator, 10 years as a corporate attorney, and has gained exposure in both large and small practices.

Contact information: Maura Schreier-FLeming 972 380 0200 or
info@bestatselling.com

Consumer Electronics

"The Mobile Phone 'Melting Pot' - Trends in Network Access Technology Beyond 3G"

Date: Tuesday, March 14th, 2006
Lunch/Chapter business: 11:30 AM – 12:00 P.M.
Program: 12:00 - 1:00 P.M.

Cover: \$5 for IEEE Members, \$10 for non-IEEE Members/Guests (includes Lunch buffet) *IEEE Student Chapter members Free*

Place: Holiday Inn Select, 1655 North Central Expressway, Richardson, TX

Speaker: Dr. Rick Wietfeldt, CTO, Systems & Software, OMAP Cellular Systems, Texas Instruments

Program Summary: There is much talk about "Beyond 3G" cellular technology, so-called B3G or 3.9G, and its intersection with multiple non-cellular technologies. This convergence manifests itself most directly in the mobile handset, which is evolving to incorporate an impressive "melting pot" of technologies. In this presentation, we present one definition of a converged B3G handset, and explore the challenges, opportunities, and System-on-chip and system implementations towards this B3G vision of convergence.

- The Phone Melting Pot and Convergence... a definition of Convergence and B3G
- Wireless Market... Evolution and Trends
- Converging Applications... BT, UWB, WLAN, VoWLAN, Navigation, mobile DTV, NFC/RFID
- System & Silicon Integration... Challenges & Solutions
- The Road to 4G... OFDM, Broadcast, Multiple pipes, Cognitive radio

Dr. Rick Wietfeldt joined Texas Instruments in 2003 and serves as CTO, Systems and Software, for the Cellular Systems group within the Wireless Terminals Business Unit. In this role, he is responsible for driving the convergence of communications, computing and emerging technologies, with emphasis on next-generation cellular devices that will incorporate wireless technologies like UWB, DTV, A-GPS, and advanced multimedia applications and graphics functionality. Dr. Wietfeldt earned a doctorate degree in earth and space technology from York University in Toronto. He also holds a bachelor's and master's degree in electrical engineering and engineering science from the University of Toronto.

For additional information, please contact Will Lumpkins at (214) 567-3333 xillia@ieee.org or Sam Broyles at (214) 480-3232 sam.broyles@ti.com. To download presentations, view upcoming calendar, etc. check out our web site at: <http://www.DallasCES.org>

Electromagnetic Compatibility

Date: Tuesday, March 21st, 2006
Refreshments 6:00 -- Program 7:00 P.M
RSVP to Bill Paschetag, bpaschetag@IEEE.org

Place: TBD

Speaker: Mr. John Osburn, Lockheed Martin

For more information, visit the Dallas IEEE/EMC Chapter Website (<http://www.DallasEMC.org>), or contact Bill Paschetag, bpaschetag@ieee.org

Electron Devices

For program information please contact Zeynep Celik-Butler, (817) 272-1309, zbutler@uta.edu

Engineering Management

Beginning March 10th, the Engineering Management society will meet the second Friday of each month at 11:30 am. Our meeting will take place at the Holiday Inn of Richardson and all inputs are welcome.

For program information please contact Bob Bishop, 903.482.5320 or r.bishop@ieee.org

Industry Applications

If you are interested in this society please contact Dr. Tim Ozugur at (972) 477-2737 Tim.Ozugur@alcatel.com

Lasers & Electro-Optics

"A Survey of High Power Semiconductor Lasers"

Date: Thursday, March 9th, 2006
Program 6:30 P.M

Place: TBD

Speaker: Dr. Steve O'Brien

Program Summary: High power semiconductor lasers have important applications, including telecommunications, diode-pumped solid state (DPSS) laser, direct-diode machining and several scientific instrumentation applications. Starting in approximately the 1990's, the performance of both high power diffraction-limited and high power multi-mode semiconductor lasers has improved dramatically. For example, single spatial mode powers increased by almost 2 orders of magnitude, with the highest reported single spatial mode cw power of 6.2 W. Similarly, multimode powers have seen 4-6x increases while simultaneously increasing conversion efficiencies to > 70%. This talk reviews these substantial advancements in high power multimode and single spatial mode semiconductor lasers.

Dr. O'Brien received a BS-Physics and BS-Mathematics from Western Washington University in 1981 and his M. Eng. and Ph.D. degrees from Cornell University. In 2000, Dr. O'Brien co-founded T-Networks Inc., a company specializing in high speed, low chirp 1.55 um modulators. Dr. O'Brien served multiple roles at T-Networks including interim CEO, VP-Engineering, and Director-Business Dev. Dr. O'Brien left T-Networks in 2004 and has since been consulting part time and teaching part time. The consulting business is half technical and half business-oriented, with the business half focused on the many challenges facing small start-up companies.

Details for IEEE-LEOS Dallas Chapter seminar series are listed on our website at <http://www.engr.smu.edu/leos/>

Microwave Theory & Techniques

Program information for the Microwave Theory and Techniques Dallas Chapter can be obtained by e-mailing either Bob Eye (reye@lqtx.com) or Bob Coats (rcoats@flash.net).

Power Engineering [Fort Worth, TX]

For Program Information please contact Julio Chavarria at jchavar1@txued.com, or telephone number 214-743-6681.

IEEE Dallas Section Direction/March 2006

Reliability

"Thermal Imaging in Failure Analysis"

Date: Tuesday, March 21st, 2006, 6:30 P.M.

Place: UTD Engineering and Computer Science Building, Room 3.503, Richardson, TX

Speaker: Mr. Todd Snively, Raytheon Failure Analysis Lab

Program Summary: Thermal imaging, or Infrared (IR) Imaging, has been widely used in industry as a diagnostic tool to identify thermal gradients on systems as large as electrical substations to areas small enough to reside on a silicon die. Security forces also use thermal imaging for security surveillance on our borders, as do firefighters in the search for hot spots in burning buildings. From manufacturing organizations to public service, from large to small feature, the application of thermal imaging techniques provides a wealth of information about the thermal characteristics and manifestations in a system of interest.

This presentation will provide an insight into case studies in the Failure Analysis Lab where thermal imaging has been used to troubleshoot a failure as well as evaluate a design. Several examples will be given.

Todd Snively is a Senior Failure Analysis Engineer for Raytheon Electronic Systems in McKinney, Texas. He has been with Raytheon for six years. He holds Masters Degrees in Materials Science and Engineering and in Industrial Chemistry from the University of North Texas. In recent years, *Snively* has contributed to several publications/ presentations related to failure analysis of components and materials. Todd's main job function is to support internal projects within Raytheon by performing failure analysis for production, field returns as well as analyses for research and development.

All attendees are welcome. Refreshments will be served.
For Program information please contact please contact Lon Chase (972) 952-3138.

Signal Processing

"Vision-Based Hand Gesture Tracking and Recognition"

Date: Monday, March 20th, 2006, 11:00 A.M.

Place: UTD Engineering Building South (ECSS), Room 2.102 (T1 Auditorium), Richardson, TX

Speaker: Professor Thomas Huang, Member of National Academy of Engineering, IEEE Fellow

Program Summary: We shall present some results of our research on hand tracking and gesture recognition in the last decade. This research is motivated by applications in human-computer interaction such as display control in virtual environments and the manipulation of virtual objects. Although we have studied both Appearance-Based and 3D Model-Based approaches, this talk will concentrate on the latter.

At any given time instant, the hand configuration - 6 parameters for the global hand "pose" and 21 finger joint angles (the hand "posture") - is a point in the 27-dimensional configuration space. We track the trajectory of this point over time using 3D model-based and analysis-by-synthesis approach. The challenge is to represent the constraints on hand posture and finger movement in a compact way and use this representation to speed up the search in the 21-dimensional space. The tracking results can then be used to do gesture recognition. Some results will be shown on constraint representation and its use in tracking.

Thomas S. Huang is William L. Everitt Distinguished Professor of Electrical and Computer Engineering at the University of Illinois at Urbana-Champaign, and Research Professor at the Coordinated Science Laboratory, and Head of the Image Formation and Processing Group at the Beckman Institute for Advanced Science and Technology and Co-Chair of the Institute's major research theme Human Computer Intelligent Interaction. Dr. Huang's professional interests lie in the broad area of information technology, especially the transmission and processing of multidimensional signals. He has published 12 books, and over 400 papers in Network Theory, Digital Filtering, Image Processing, and Computer Vision. He is a Member of the National Academy of Engineering; and a Fellow of the International Association of Pattern Recognition, IEEE, and the Optical Society of America; and has received a Guggenheim Fellowship, an A.V. Humboldt Foundation Senior US Scientist Award, and a Fellowship from the Japan Association for the Promotion of Science.

For more information on the Dallas Chapter and Directions to UTD, please refer to: <http://www.utdallas.edu/~kehtar/ieee-sp/ieee-sp-index.htm>

Solid State Circuits

For more information please contact society chair.

Recruiting Graduate Students at one of the Fastest Growing Graduate Programs in Engineering and Computer Science in the United States of America

The [University of Texas at Dallas](http://www.utdallas.edu) is strategically located in the center of Telecom Corridor, home of the nation's 2nd largest high-tech U.S. economy. The UTD Department of Electrical Engineering, in the Erik Jonsson School of Engineering and Computer Science, has research areas in communications; speech and signal processing; digital systems; analog circuits; microelectronics and nanoelectronics, optics, optoelectronics; lightwave devices and systems; and wireless communications. Because of our strong collaborative programs with Dallas-area microelectronics and telecommunications companies, special emphasis is placed on preparation for research and development positions in these high technology industries, as well as academic positions.

The department's current enrollment is 714 undergraduate and 365 graduate students with 50+ faculty members. More than 165 graduate students are supported each year through research and teaching assistantships. The department awarded 160 B.S., 119 M.S., and 23 Ph.D. degrees during the 2005 academic year.

Consider the following:

- Over 800 high-tech firms within a five-mile radius of UTD
- A world-class faculty that includes two Nobel laureates
- Four Nobel laureates at Southwestern Medical School in Dallas which is in the same UT system
- Jonsson School ranks 4th in the United States in combined number of Electrical Engineering and Computer Science (BS, MS, PhD) degrees awarded
- \$300M was granted mainly for electrical engineering and computer science programs for five years
- Texas Instruments is constructing a state of the art \$3B chip manufacturing facility in UTD's backyard
- New \$85 million, state-of-the-art Natural Science and Engineering Research Building, enhancing both the breadth and quality of engineering education and research

Graduate Assistantships in the Department of Electrical Engineering include a full tuition waiver and a stipend starting at \$1,950 per month. We are offering the following graduate assistantships beginning the Fall 2006 semester:

- 20 Teaching Assistantships
- 10 Research Assistantships in electronic materials and devices, CMOS process & characterization, fabrication & characterization of nanotubes, nano-imprints
- 7 Research Assistantships in speech signal processing
- 4 Research Assistantships in image processing, signal processing, biomedical/bioacoustic signal processing and noise cancellation
- 4 Research Assistantships in integrated circuit design, digital VLSI design and CAD
- 3 Research Assistantships in bioengineering
- 2 Research Assistantships in optoelectronics
- 2 Research Assistantships in plasma processing
- 5 Research Assistantships in communications

If you are interested in learning more about the graduate programs in the Department of Electrical Engineering, please contact:

Prof. Gil S. Lee (Graduate Committee Chair)
 Department of Electrical Engineering; Erik Jonsson School of Engineering & Computer Science
 The University of Texas at Dallas
 Richardson, Texas 75083
gslee@utdallas.edu

Announcements



The Dallas Section of the **Institute of Electrical and Electronic Engineers (IEEE)** for the benefit of its members publishes **Direction** monthly from September through May. Articles and information for publication should be submitted to: Biron Pickens, Editor, 5015 Moss Point Rd., Dallas, TX 75232, Phone (972) 824-8284, Fax (972) 263-6710, Email: drbtimothy@sbcglobal.net. Special announcements must first be submitted to Bob Shapiro, Administrative Chairman, Phone (214) 448-4818, Email: rcshapiro@comcast.net, and will be published on a space-available basis. Deadline for submission of materials is no later than the first of the month prior to the month of publication.

Advertising: *Direction* is distributed to approximately 7,200 members in the Greater Dallas area. Camera-ready copy must be submitted by the first of the month prior to the month of publication to the Editor at the above address.

Invoicing and/or contractual agreements for advertising are administered by Biron Pickens, Editor, and Gerry Burnham, Administrative Chairman. All ad insertions must be cleared through Biron Pickens or Dr. Gerry Burnham before being submitted for publication. Advertising rates are as follows:

	Per Insertion	
Full Page \$800.00		Quarter Page \$200.00
Half Page \$400.00		Bus. Card \$120.00

