

Pittsburgh Section

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How to Build and Expand a Successful Consulting Practice

Dr. Gary L. Blank, P.E.
Engineering Update Institute



With the recent DOWNSIZING AND RESTRUCTURING the demand for consultants (full-time and part-time) has increased dramatically. The question is “Are you available?” Learn “How to be a Successful Consultant and Get in on a Booming Market”. This six-hour seminar for engineers, scientists, and other professionals illustrates how to keep your present job and launch a successful part-time consultancy. Also explained is how to allow your practice to grow as rapidly as you desire using the right strategies. For more information, please visit the website <http://www.drblank.com/cosem.htm> for a preview.

Dr. Blank received his B.S. from Illinois Institute of Technology, M.S. from the University of Idaho, and Ph.D. from the University of Wisconsin in Madison. All degrees are in electrical engineering. His career has advanced along parallel paths in industry and in academia. For 15 years he was a full-time consultant while concurrently teaching part-time at the University of Florida and UCLA. For 13 years he held full-time faculty positions at Marquette University, Northern Illinois University, and the Illinois Institute of Technology, while concurrently consulting part-time in industry.

Dr. Blank made a smooth transition from a full-time salaried employee to a full-time independent consultant in 30 days. He has taught and helped hundreds of professionals internationally to start and to expand their consulting practices. During the thirty years of his consulting business, he was never without a client for more than one week. Dr. Blank is a dynamic and effective workshop leader. His illustrations and tips are down-to-earth, practical proven methods. Dr. Blank is a Senior Member of the IEEE and the IEEE-USA Vice President, Member Activities.

Place:	Westinghouse Energy Center, Monroeville
Date:	October 2 nd
Registration:	8:30 AM
Program:	9:00 AM to 4:00 PM (lunch will be provided)

For more information or to register, contact Dr. Kal Sen at (724) 696-1611 or senkk@ieee.org. The program fee is \$100 for IEEE members and \$125 for non-members.

Please make registration checks payable to “IEEE Pittsburgh Section”.

Directions: From downtown Pittsburgh, take the Parkway East Outbound to Exit 14A (Monroeville). Cross the traffic light (Business 22) and proceed on Rt. 48 South for two traffic lights. Turn left onto Northern Pike. Proceed East ~ 0.2 miles and turn right at the first traffic light onto Westinghouse Drive. Travel 0.7 mile to the three flags where the main entrance is located. Parking in the evening will be plentiful in the large area in front of the building. Enter the main entrance. Check with the security inside. You will be directed to the proper auditorium for the presentation.

From PA Turnpike, take Exit 57 (Monroeville). After the toll plaza, get in the left lane (Business-22). At the first light, turn left on to Rt. 48 South and follow the directions shown above.

4th Annual IEEE/IEE Electrical Power Symposium October 28th and 29th Ottawa, Ontario

- October 28th: Tutorial – Electrical Power Systems Present and Future at Algonquin College, Ontario, Canada.
Field Visit – Chats Falls Hydro Power Plant at Fitzroy Harbour, Canada.
- October 29th: The Electrical Power Symposium 2004 at Centerpointe Theatre, Ontario, Canada.

For detailed information or to register for the symposium, please visit www.ewh.ieee.org/soc/pes/ottawa/EPS2004. You can also contact Wahab Almuhtadi at almuhtadi@ieee.org.



Simulation for Power Electronics: An Update

Thomas E. McDermott, Ph.D., P.E.

Ansoft Corporation



The design and application of power electronic systems practically requires computer simulation. For high-speed digital circuits, control systems, or electric utility systems, there are obvious choices for the simulation tool. The choice is not so obvious for power electronic systems, and the device models are also not as well developed. This presentation will cover the unique modeling requirements for power electronics, and the current limitations. The pros and cons of several candidate techniques will be discussed:

- The SPICE family
- The EMTP/ATP family
- Simulink and the Power System Blockset
- The VHDL/AMS family
- Custom-purpose (Saber, SIMPLORER)

In the second half of the presentation, a motor model and a semiconductor device model will be illustrated using the IEEE Std. 1076.1-1999, "VHDL Analog and Mixed-Signal Extensions". Attendees will have access to a free VHDL-AMS simulator to run the examples.

Mr. McDermott is a senior R&D engineer with Ansoft, currently working on the SIMPLORER product. He has a M. Eng. Degree from Rensselaer (1981) and a Ph. D. from Virginia Tech (1998). He has over 25 years experience with consulting, simulation, and custom software development in electric utility and power electronic systems. He is a past chairman of the Pittsburgh Section and PES Chapter, past secretary of the IEEE/PES Distribution System Analysis Subcommittee, and past chairman of the IEEE/PES Working Group on Estimating the Lightning Performance of Transmission Lines. In the fall of 2001, Tom presented a tutorial on "Power Electronics Simulation with SPICE" for the Pittsburgh Section. This presentation will be an update of the 2001 tutorial.

Place:	Westinghouse Energy Center, Monroeville
Date:	October 6 th
Social:	6:30 PM
Program:	7:00 PM

This meeting will be of particular interest to the members who belong to the PES and IAS societies. For more information or to register, contact Charles Urso at (412) 3384871 or curso@llitechnologies.com by September 30th.

Directions: For directions, please refer to the article on the 1st page of The Bulletin.

SC2004 – High Performance Computing Networking and Storage Conference

SC2004, the world's leading conference on high performance computing, networking and storage, will be held in the brand new David L. Lawrence Convention Center in Pittsburgh from November-12. The SC2004 conference will bring representatives from many technical communities together to exchange ideas, celebrate past successes and plan for the future. To reflect this important function, the conference theme is Bridging Communities. This represents not only the technical communities participating in the conference but the architecture of the city, too. State-of-the-art technology will be utilized in the conference's high performance network, SCinet, and in the Access Grid to bring participants from around the world to Pittsburgh. At the convention center itself, the Technical Program, Education Program, and Minority Serving Institutions Program will create bridges to new communities.

The conference Technical Program will continue the tradition of providing high quality, peer review papers in research and application areas of high performance computing, networking and storage. Papers are being presented from all communities including industry, DoD, federal agencies, and universities. The Technical Program will be the highlight of the conference. A total of 23 tutorials ranging from introductory to advanced concepts will be available. Additionally there will be industry exhibits showcasing the latest technology available now that will be on the desktop in just a few months, and research exhibits showcasing what's new in the university, federal government and non-profit sectors. The Exhibits provide the time and the place for real information exchange and can lead to new partnerships and ideas!

More details about the conference and information on how to register can be found at the conference website www.sc-conference.org/sc2004. An early registration discount is offered for registrants who complete and submit their application by October 8th.

Place:	David L. Lawrence Convention Center, Pittsburgh PA
Date:	November 6 th - 12 th

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A Tutorial on Power Electronics

Keith H. Sueker, P.E.



The basics of power electronics, and discussions on some of the design considerations that are involved will be presented in a two part tutorial. This tutorial is intended for those engineers working in other fields who want to get an understanding of solid state power technology and its potential impact on their field of endeavor. It should also be of interest to students who wish to know more about this field. Semiconductors will be discussed as well as an overview of the circuit breakers, transformers, resistors, capacitors, fuses, motors and other peripheral devices that are involved in power electronics. Typical constituent circuits will be shown along with their uses in power supplies, controllers and motor drives. The tutorial will also discuss the relationship between power electronic equipment and the supplying utility from the standpoint of harmonics and power factor.

Mr. Sueker is a graduate of the University of Minnesota with a BSEE degree and of the Illinois Institute of Technology with an MSE. He has worked many years in the field of large pulsed power supplies and specialized applications of power electronics. Currently, he is employed by Curtiss-Wright Electro-Mechanical Corporation. He is a Senior Member of the IEEE and a registered professional engineer in the Commonwealth of Pennsylvania.

Place: Westinghouse Energy Center, Monroeville
Date: October 28th and November 4th
Social: 6:30 PM
Program: 7:00 PM to 9:00 PM

Upon completion of both sessions, 0.5 Continuing Education Units (CEUs) of units will be granted. A bound volume of the material presented will be included. Registration for the tutorial is required by October 14, 2004. The fee structure for the tutorial is :

IEEE Member: \$50
Non-Member: \$75
Student Member: \$25

If you would like a CEU certificate, please include \$10 in addition to the tutorial fee. IEEE headquarters charges a \$10 fee to issue a CEU certificate.

For more information, or to register, please contact John Momyer at (724) 8646777 ext. 101 or john.momyer@crispcontrol.com. Please make checks payable to IEEE Pittsburgh Section and mail to John Momyer, 200 Productivity Place, Irwin, PA 15642.

Directions: For directions, please refer to the article on the 1st page of The Bulletin.



Human Factors in Image Processing

Ross Potter, P.E.

Bombardier Transportation



The presentation and perception of images by the user is the most overlooked and least understood part of an image processing system. This talk will discuss methods that have been developed and clinically evaluated for image processing systems. Psychophysics of the human vision system and perceptual factors that are considered in the design and evaluation of image processing systems will also be presented. A development and testing of a specific clinical system will be reviewed.

Mr. Ross has over 20 years of experience in design and testing of medical instrumentation. He is currently a Senior System Assurance Engineer at Bombardier Transportation.

Place: Benedum Hall, Room 426, University of Pittsburgh
3700 O'Hara St.
Pittsburgh, PA
Date: October 26th
Program: 7:30 PM

This meeting is cosponsored by the Robotics Automation Society and the Signal Processing Society. For more information please contact Michael McCloud at mmccloud@engr.pitt.edu

Graduates of the Last Decade

IEEE Gold Program



Members in the Pittsburgh Section are interested in gathering support for an active GOLD group. Please respond with ideas for programs. The GOLD group has a purpose of providing young engineers with the tools they need to succeed in life as well as in the profession. Use this information as guidelines for suggestions that you submit to the committee.

In process are plans for a social gathering in mid-November. The committee would like to hear ideas for and when to have the meeting. There are preliminary plans to meet at Dave and Busters for a brief meeting and social activities. Further details will be provided in the November Bulletin.

Please respond to Paul Link at (724) 387-4893 or p.r.link@ieee.org

Tracing Traitors: Collusion Resistant Multimedia Fingerprinting
K.J. Ray Liu, University of Maryland, College Park
Dept. of Electrical and Computer Engineering



Digital fingerprinting is an emerging technology for identifying users who have legitimate access to plaintext content but may use the content for unintended purposes, such as duplication and redistribution. For multimedia, fingerprints can be put into the content using embedding techniques that are typically concerned with robustness against a variety of attacks mounted by an individual. Ensuring the appropriate use of multimedia content, however, is no longer a security issue with a single adversary. The global nature of the Internet has brought media closer to both authorized users and adversaries. It is now easy for a group of users with different marked versions of the same content to work together and collectively mount attacks against the fingerprints. These attacks, known as collusion attacks, provide adversaries a cost-effective method for removing an identifying fingerprint.

In this talk, tracing traitors using collusion-resistant fingerprinting for multimedia that jointly considers the encoding, embedding and detection of fingerprints will be presented. A general formulation of fingerprint coding and modulation provides a unified framework covering orthogonal fingerprints, coded fingerprints, and other correlated fingerprints. Under this framework, we have proposed a new class of structured codes, known as Anti-Collusion Codes (ACC), and designed algorithms that allow for gathering forensic evidence of the guilt and for identifying colluders.

Professor K. J. Ray Liu received the B.S. degree from the National Taiwan University in 1983, and the Ph.D. degree from UCLA in 1990, both in electrical engineering. His research contributions encompass broad aspects of wireless communications and networking; information security; multimedia communications and signal processing; signal processing algorithms and architecture and bioinformatics. Dr. Liu is a Fellow of IEEE. Dr. Liu is the Editor-in-Chief of IEEE Signal Processing Magazine and was the founding Editor-in-Chief of EURASIP Journal on Applied Signal Processing. Dr. Liu is a member of the Board of Governors and has served as Chairman of Multimedia Signal Processing Technical Committee of IEEE Signal Processing Society.

Place: Benedum Hall, Room 426, University of Pittsburgh
3700 O'Hara St.
Pittsburgh, PA
Date: November 3rd
Program: 12:00 Noon

For more information please contact Michael McCloud at mmccloud@engr.pitt.edu



Industrial Power Systems:
A Facilities Engineering Perspective
Barry Brusso, Fellow, IEEE
IEEE Distinguished Lecturer



Typically the resident plant facilities engineering staff for an industrial facility are ultimately involved in the day to day on site performance, application, operation and maintenance of the plant power systems. It is critical to have this staff take the lead in planning, design, and preparation of specifications, installation oversight, and commissioning of new power systems. The presentation will focus on the role of the facilities engineers as the owner's representatives and the engineering steps they must follow to reach the project objectives associated with new and retrofitted industrial power systems.

Mr. Brusso received a B.S.E.E. degree from the University of Illinois (Champaign-Urbana) in 1967 and joined the Westinghouse Electric Corp. the same year. He joined Fidelity Electronics Ltd., in 1975 as Senior Engineer in the Biomedical Engineering Division, with overall responsibility for development and production of its products. In 1978, he joined the S&C Electric Company as Facilities Engineer in the Plant Engineering Division and presently holds the dual positions of Principal Facilities Engineer and Manager – Electronic Systems Support with overall responsibility for electrical engineering of the manufacturing facilities and design and fabrication of the product's quality inspection testing equipment. For over 21 years he managed the Metrology and Communication Systems Department, which maintains corporate standards and performs calibrations of the measuring and test equipment for the entire company. Mr. Brusso has served as a member delegate to the National Conference of Standard Laboratories for over 10 years. He is an IEEE Fellow, recipient of the IEEE Third Millennium Medal and a member of the following IEEE Societies: Industry Applications, Dielectrics and Electrical Insulation, Instrumentation and Measurement, and Power Electronics.

Place: Westinghouse Energy Center, Monroeville
Date: November 11th
Social: 6:30 PM
Program: 7:00 PM

This meeting will be of particular interest to the members of the PES and IAS societies. For more information or to register, please contact Dr. Kal Sen at (724) 696-1611 or senkk@ieee.org by October 11, 2004.

Directions: For directions, please refer to the article on the 1st page of The Bulletin.

