Wavelengths

CONTENTS

2003 Fall Section Meeting

Wednesday, October 29, 2003

bps Training and Conference Center
31301 Evergreen Road (near 13 Mile Road)
Beverly Hills, MI 48025

Registration
You can register online or by fax or e-mail.

Schedule of Events
- 5:00 pm: Registration
- 5:45-6:45: Chapter Technical Sessions
  7 Technical sessions running concurrently (see schedule)
- 6:45-7:15: Student and Vendor Exhibits, University Showcases, Cash Bar
- 7:15-8:00: Dinner
- 8:15-9:00: Keynote Address

Technical Presentations

Keynote Address

Title: ANALYTICAL METHODS IN AUTOMOTIVE EE SYSTEMS DESIGN

Speaker: Paul Duffy, Manager, EE CAE Department, Ford Motor Co.

Abstract: As electrical content and complexity continue to grow, the design of the electrical system in a modern automobile becomes more challenging. Analytical tools and methods provide the ability to design these complex systems, in less time, with greater reliability. Future opportunities will emerge in modeling standards and system design tools.

Bio: Mr. Duffy has been in the automotive electronics industry for over 26 years. In that time, he has held numerous positions in product engineering and manufacturing for automotive electronic components and systems. His current position is EE CAE Department Manager at Ford Motor Company. Mr. Duffy holds a BSEE and an MSEE degree from the University of Michigan.

Chapter Presentations

Chapter IA - Circuits and Systems, Information Theory, Signal Processing, and Control

Title: PHASE CALIBRATION OF GPS ANTENNA ARRAY USING REAL AND SIMULATED GLOBAL POSITIONING SYSTEM (GPS) SIGNALS

Speaker: Lee Liou

Abstract: Software GPS receiver development has been undertaken. We are particularly interested in improving the GPS signal-to-noise/interference ratio using a beam forming techniques. The phase relationship among the antenna array elements requires careful calibration. In this study, we will report a phase calibration technique for a 2 by 2 GPS antenna array using both simulated and real GPS signals. This technique is based on the GPS signal-processing algorithm developed for the software GPS receiver. A four-channel digital data collecting system was used in the experiment. For a simulated GPS signal, the experiment was conducted in an anechoic chamber in which a GPS simulation system was facilitated. For real GPS signals, we conducted the experiment on a rooftop to receive the signal from GPS satellites. The calibration verified the coherent nature of the signals among the elements. The results also allowed the source's direction to be determined.

Bio: Lee L. Liou received a B. S. degree in physics from National Tsing-Hua University, Hsin-Chu, Taiwan, an M. S. degree in geophysics from national Taiwan University, Taipei, Taiwan, and a Ph. D. degree in physics from University of Southern California, Los Angeles, California. From 1985 to 1986, he was with Hewlett-Packard Fort Collins Integrated Circuit Division, Ft. Collins, Co, where he helped developing advanced CMOS processing. From 1987 to 1989, he was with Universal Energy Systems Inc., Dayton, OH, where he worked on the advanced heterojunction semiconductor device development. In 1990, he joined Sensor Directorate, Air Force Research Laboratory, Wright-Patterson Air Force Base, OH. Since then, his work includes the modeling of the power heterojunction bipolar transistor, its reliability, and electromagnetic simulation for microwave and electro-optics applications. He is currently involved in the GPS and the related signal processing technology development.

Chapter IB - Circuits and Systems, Information Theory, Signal Processing, and Control

Title: AUTONOMOUS VEHICLES - INTELLIGENCE AND MECHATRONICS

Speaker: Professor Ka C. Cheok, Oakland University

Abstract: From many perspectives, autonomous vehicle systems (AVS) technologies are on the brink of exponential growth as the industry continues to push the limits of innovations and ranges of applications in response to user's demands. Designed to replace or complement human deed in performing dull, dirty and/or dangerous operations, and humanly impossible missions, autonomous unmanned aerial, ground, underwater vehicles (UAV, UGV and UUV) have been effectively utilized for military, exploration and commercial applications. Exemplary highlights are the Predator sorties in Operation Enduring Freedom, the Sojourner exploring Mars surface and the Alvin uncovering the Titanic. Concepts of multiple unmanned vehicles working along side the soldiers have been recognized as a necessary part of the future Objective Force Warriors (OFW) for the US Army Future Combat Systems (FCS). Closer to home, auto-guided ground vehicles are employed on factory floor for cargo transportation, and special manual guided vehicles in police work and high-risk situation.

This talk will provide an overview of R&D and education efforts on autonomous UGV's in the military and commercial applications. Examples are the US Army Demo III Experimental Unmanned Vehicles (XUV) and the autonomous Striker-based NLOS leader-follower program. A commercial R&D project for a self-guided lawn care vehicle with a local positioning system will also be presented. An emphasis on education of engineering students via the Intelligent Ground Vehicle Competition will be highlighted.

Autonomous or semi-autonomous UGVs are expected to exhibit so-called intelligent behaviors that will act appropriately in uncertain and complex environment. To achieve the complex tasks, they need to utilize sophisticated state-of-the-art mechatronics equipment for sensing, perception, decision and actuation. They are expected to communicate readily with human operators, acquire and share information among other UGVs and computers. The use of telematics and information technology need also be incorporated into the robotic vehicles to enhance and supplement their intelligence.

The talk will highlight a methodology for conceptualizing, designing, engineering, integrating and testing the intelligence and mechatronics of a UGV. Experimental and simulation results will be presented.

Bio: Dr. Ka C. Cheok is a Professor and the Chair of the Department of Electrical and Systems Engineering at Oakland University, Rochester, Michigan. He received his B.S.E.E. from the University of Malaya, Kuala Lumpur, Malaysia in 1977, M.S. in Electrical & Computer Engineering in 1979 and Ph.D. in Systems Engineering in 1982 from Oakland University. He joined the Faculty of School of Engineering and Computer Science, Oakland University in 1984.

Dr. Cheok is active in the research areas of real-time computer controlled systems involving intelligent control paradigm, autonomous unmanned robotic systems, automotive mechatronics, robust tracking control systems, computer visualization and virtual system simulators. His contributions include the development of optimal control, on-line heuristics search, fuzzy logic and neural network techniques, autonomous guidance of mobile robots, and control of automotive systems such as active suspension, traction, stabilized platform and active safety systems. His current research efforts are focused on self-guidance of autonomous vehicle, and collision avoidance/crash impact reduction systems for automobiles.

He has published over 40 technical journal articles and 100 conference papers. Dr. Cheok has worked with the automotive, robot and defense industries and agencies under numerous research grants and development projects.

He serves as a Consultant Member for the prestigious US Army Science Board. He is a co-organizer of the annual International Ground Vehicle Competition sponsored by AUVSI, DoD, DoT, SAE and the automotive/robot industries. Dr. Cheok is an Associate Editor for the International Journal of Intelligent Automation and Soft Computing, and an Advisory Editorial Board member for the International Journal of Automotive Technology. He also served as Operating Committee Member for American Control Conferences and IEEE ITSC Conferences, and the Conference Chair for the Conference on Computer Application in Industry and Engineering.

He is a co-recipient of the Nissan Award for the Best Research Innovation at the 1997 International Symposium on Automotive Technology and Automation, Florence, Italy. He is a recipient of the State of Michigan sponsored Teaching Excellence Award from Oakland University and the Widrow Teaching Excellence Award from the School of Engineering & Computer Science.

Title: Fuzzy Control in Medicine

Speaker: Hao Ying, Ph.D., Professor, Department of Electrical and Computer Engineering, Wayne State University

Abstract: Fuzzy system technology is a key information technology. Its unique capabilities/advantages include quantitative and intuitive representation and processing of human knowledge and ambiguous information. The technology is especially powerful in solving challenging problems in biomedicine that is inherently complex, nonlinear, time-variant and uncertain.

This presentation will be focused on theory and clinical implementation of a real-time fuzzy controller for mean arterial pressure control in the patients in the Cardiac Surgical Intensive Care Unit immediately after their open-heart surgery. Twelve patients were involved. This project was accomplished in 1988 by the speaker and is the world's first clinical application of fuzzy control.

Bio: Dr. Hao Ying has been a Professor in the Department of Electrical and Computer Engineering at Wayne State University since 2000. He was on the faculty of The University of Texas Medical Branch at Galveston between 1992 and 2000. He obtained the B.S. and M.S. degrees in Electrical Engineering and the Ph.D. degree in Biomedical Engineering. Besides fuzzy systems, his current research projects are focused on the development of novel biomedical acoustic sensor systems and medical

decision-making techniques. Both projects are funded by the National Institutes of Health.

Professor Ying has published one single-authored research monograph entitled Fuzzy Control and Modeling: Analytical Foundations and Applications (318 pages, IEEE Press, 2000) as well as 55 peer-reviewed journal papers. He is an Associate Editor of International Journal of Fuzzy Systems. He has served as Program Chair, Publication Chair, and Program Committee Member for over a dozen of international conferences.

Chapter II - Vehicular Technology

Title: ELECTRONIC DRIVERS FOR DYNAMIC MOTOR CONTROL - AUTOMOTIVE DESIGN ISSUES

Speaker: Arman Moein, Trico Products Corporation

Abstract: Dynamic Motor Control requires delivery of a range of power levels which is possible by means of pulse width modulation switching solid state power electronics. The solid state switch type and the level of integration are selected based on voltage, power, and frequency range of the application. In addition the electronics must be protected against failure modes such as overload, over temperature, under and over voltage, reverse battery, and transients. Many applications require motor terminal switching to either power rails. These applications require the solid state power switches in H bridge configuration. There are different switching modes in H bridge applications. This presentation is about design criteria, practical limitations, and failure mode protection schemes considered for such a solid state power electronics geared for automotive applications.

Bio: Arman Moein has BS and MS degree in Electrical and Computer Engineering from SUNNY @ Buffalo. He is currently working as the supervisor of motor and system electronics group at Trico Products Corporation. He is currently involved in research and development of new bread of Mechatronics such as electronic reversing wiper motors. He has been working at Trico for 13 years and has a patent pending on Direct Drive Wiper System. His technical interest includes sensor and actuator design, dynamic motor controls, RFI suppression schemes, and power electronics.

Chapter III - Communications and Aerospace Electronics

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Chapter IV - Trident

Title: ACCOUNTING FOR MAGNETIC MATERIAL NON LINEARITIES IN IN THEN ANALYSIS OF DC MACHINES

Speaker: Dr. Richard Johnston, Ph.D., Lawrence Technological University

Abstract: Traditional dc machine steady-state analysis uses graph paper based techniques to analyze the behavior of shunt, series, and separately excited machines. Dynamic simulations have long depended on (very poor) linear approximations to the machine's magnetization curve. The curve fitting capabilities of modern mathematical software (examples are given in Mathcad, Maple, and Matlab) allow the magnetic non-linearities to be easily incorporated into the analysis.

Bio: Dr. Johnston spent three years in the U.S. Navy as a RADAR Technician before finishing the BSEE from Wayne State University in 1978. He spent two years at Motorola as an Electronic Engineer and two years at the Gulbransen Organ Co. as Manager of Advanced Circuit Design before finishing the MSEE fromWayne State in 1984. Dr. Johnston spent 6 years on the faculty of Wayne State University, finished the Ph.D. in 1993 also from Wayne State, and is currently Associate Professor of Electrical Engineering at Lawrence Technological University. His research interests include Power Electronics, Variable Speed Drives, and the use of modern personal computers and software in the practice of Electrical Engineering.

Chapter V - Computer

Title: AN OVERVIEW OF UML (UNIFIED MODELLING LANGUAGE) FOR EMBEDDED, REAL-TIME SOFTWARE DESIGN

Speaker: Venkat Alladi, PMP and John (Jian) Wei, PMP

Abstract: This presentation will provide an overview about UML and how UML can be used for designing embedded real time software applications. In addition, the presentation also provides an overview of the current and future state of the embedded software development industry using UML.

Bios: Venkat Alladi is a Software Architect consulting for Ciber Inc at Ford Financial. He has a Masters in Computer Science from Oakland University. He is also a certified Project Management Professional (PMP). He is a mentor in the areas of Software Methodologies, OOAD and Component Based Architectures at his clients such as Ford Motor Company and SBC (Southwestern Bell Corporation). He has been an author of several technical papers that have been presented at conferences conducted by IEEE, TACOM, TI (Texas Instruments), and IBM Rational.

John (Jian) Wei is a software architect consulting for Ciber Inc at Ford. He has a MS in MIS from UDM and German Technical degree.

As an architect and PMI certified project management professional, John strives to add value to each of his I.T. projects by consistently delivering integrated solutions of technology, methodology, and project management best practices. John has had project successes in the automotive, financial, plastics, glass, energy, and education industries.

Chapter VI - Geoscience and Remote Sensing

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Chapter VII- Power Engineering and Industrial Applications

Title: NORTHEAST BLACKOUT 2003 - A LOCAL PERSPECTIVE

Speaker: Richard Schultz, Vice President - Engineering, International Transmission Company

Abstract: Mr. Schultz' presentation will discuss the events that surrounded the eventual blackout conditions that left 50 million American and Canadian residents without electric power on 8/14/03. As of this notice, there are many unresolved issues, but hopefully Mr. Schultz will be able to share with us the cause(s) for the event, ITC's performance during the blackout and projections of industry needs to mitigate future similar events.

Bio: Mr. Schultz is primarily responsible for transmission planning, engineering, and system optimization. Prior to this position, Mr. Schultz was Director, Restructuring and Regulation in Detroit Edison's transmission unit, primarily responsible for RTO implementation and restructuring agreements and practices.

Mr. Schultz joined Detroit Edison in 1968 and has held various positions of increasing responsibility in Transmission, Capital Budget, and generation planning in Detroit Edison's System Engineering and Planning Departments. In between his tenure with Detroit Edison, Mr. Schultz also worked in Florida Power and Light's System Planning Department from 1987 to 1990. Mr. Schultz was also responsible for power sales while at Midland Cogeneration Venture and for transmission planning and power delivery at Seminole Electric Cooperative, representative of ITC's major customer interests.

Mr. Schultz is a graduate of the University of Michigan with a Bachelor of Science in Electrical Engineering. He is a Registered Professional Engineer in the States of Michigan and Florida.

Chapter VIII - EMC

Title: EMBEDDED CIRCUIT LAYERED ARCHITECTURE FOR INTERNAL NOISE CANCELLATION

Speaker: James Muccioli, Chief Technology Officer for X2Y Attenuators, LLC

Abstract: X2Y® Technology is an embedded Circuit Layered Architecture that changes a standard ceramic capacitor into a balanced and symmetrical circuit that results in internal noise cancellation. This presentation provides an overview of the component's internal structure, various circuit applications and broadband performance characteristics. The goal of this presentation is to provide a foundational understanding of the technology for industry. Specific information on applications can be found at http://www.x2y.com/appnotes.

Bio: Jim Muccioli is Chief Technology Officer for X2Y Attenuators, LLC, an Intellectual Property Company focused on technology solutions for the passive component industry. Mr. Muccioli has over twenty years of specialized EMC experience, both with Daimler Chrysler and United Technologies. He is inventor or co-inventor of 17 Patents during his 16 yrs with Daimler Chrysler. He has extensive experience in EMC design, analysis, and testing, and is currently both Chairman of the SAE Integrated Circuit EMC Task Force and is currently serving on the Board of Directors of the IEEE EMC Society. Jim was the only member of the EMC Society to be selected as an IEEE Fellow in 1998 for contributions to integrated circuit design practices to minimize EMI. Mr. Muccioli is a NARTE certified EMC and ESD engineer and an active member of SAE J-1113/J-551 EMC committees. Jim has BSEE and MSEE degrees from the University of Michigan.

Chapter IX - Power and Industrial Electronics

Title: Advanced Electric Drives

Speaker: Chris Mi, Assistant Professor, University of Michigan - Dearborn

Abstract: Electric drives are the enabling technology propelling many national critical technology areas, such as renewable energy systems, factory automation and process control, robotics, and transportation. In particular, electric drives are quickly proliferating in automotive systems including electric/hybrid/fuel cell powertrain, power steering, energy regenerative braking, and drive-by-the-wire operations. Electric drives also form the basis for robotics and factory automation, which are now essential for industrial competitiveness in a global economy. Electric drives in transportation offer huge potential for energy conservation. The paradigm shift of the automotive industry from traditional internal combustion engines to electric or hybrid drivetrain will create tremendous demands for electric engineers who are proficient at systems, modeling, and control of electric drives.

This seminar will provide overview on systems, design, modeling and control of electric drives using Matlab/Simulink and other rapid prototyping tool. Concepts of vector control of induction machines, permanent magnet (PM) machines and switch reluctance machines (SRM) will be discussed. It is a great opportunity for automotive, electrical, mechanical and system engineers to get a flavor of this fast growing field of electric drives.

Bio: Dr. Chris Mi holds a BSEE and an MSEE from Northwestern Polytechnical University and a Ph.D degree from the University of Toronto. He is now an Assistant Professor at the University of Michigan - Dearborn, with teaching responsibilities in the area of power electronics, electric vehicles, electric motors and drives. Dr. Mi worked with General Electric from 2002 to 2001 as Electrical Engineer design and developing large electric motors and generators. Dr. Mi has over 15 years experience in development, manufacturing and teaching of power electronics and electric machines/drives. Dr Mi is the Chair of the Power Electronics and Industrial Electronics Chapter of IEEE Southeast Michigan Section. Dr. Mi has offered the Advanced Electric Drive Short Course through the Professional Engineering Devel-

opment at the University of Michigan - Dearborn. For details please contact chrismi@umich.edu.

Chapter X - Engineering Management

Title: BALANCED SCORECARD, A NEW TOOL FOR PROJECT AND BUSINESS MANAGEMENT

Speaker: Robert J. Lusardi, Consultant

Abstract: The objective of the talk is to explain the Balanced Scorecard: what it is, what it is not, and how it is used. We will discuss its origins, attributes and what it can do for a business or even a project.

Peter Drucker set a precedent when he integrated a strategic element into an enterprise's performance analysis with his methodology, "Management by Objective." Management by objective set a trend which led to the invention of a variety of business performance management and business process reengineering methodologies. Most of us have been through a variety of them such as benchmarking, TQM, etc. In 1992 Robert Kaplan and David Norton introduced their concept of a Balanced Scorecard in the Harvard Business Review.

Understanding the health of a project or a business is vital to accurate decision making and, hence, critical to success. Yet, critics of traditional performance management techniques based on financials have argued that they only describe a firm's history, while providing little insight into future trends. The Balanced Scorecard is based upon the idea that the traditional measurements focused on financials, which tend to be somewhat retrospective. Financial metrics typically tell how an enterprise has performed, but give little indication as to how it will perform. The Balanced Scorecard includes metrics which provide both historical and future insights.

We will look at the types of metrics that are applicable in the Balanced Scorecard approach and see how they can provide the necessary information to get an overall indication of project or business health. We will see how these metrics tie operational performance to strategic goals and hence foster alignment of the all of the members of the team. Lessons learned from a number of different implementations will be provided.

Bio: In addition to 10 years of consulting experience, Dr. Lusardi has over 20 years of management experience in large, complex organizations.

Chapter XI

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Professional Track

Title: ENGINEERING A SUCCESSFUL INTERVIEW

Speaker: Stratos Dallis, CPC, Staffing Consultant, Professional Resource Associates

Abstract: Identifying a job opportunity is only half the battle. At the interview, you must be prepared to sell yourself and abilities so the hiring manager believes he/she will become more successful by hiring you. In this session, you will learn how to prepare for an interview from an expert who conducts hundreds of interviews a year. Good story-telling techniques, interview etiquette or 'what not to do', how to prepare for commonly asked and difficult questions, and how to follow-up after the interview are topics that will be included. Whether you are employed or underemployed, this session will help you get where you want to go.

Bio: Stratos Dallis is a Certified Personnel Consultant at PRA, Marine City, Michigan. He specializes in recruiting and placing electrical and software engineers involved in advanced control technologies for vehicles, devices and manufacturing. Stratos attended several conferences, including the most recent Embedded Systems Conferences in Chicago and Boston. He has also been active in ISA and IEEE local sections. In addition to his interest in technology, Stratos is also an accomplished musician and active in community theater and his local chess club.

Student Track

Title: CAPSTONE DESIGN - DEVELOPING A PROJECT PLAN USING PROJECT MANAGEMENT TECHNIQUES

Speaker: Don Wiltcher

Abstract: Capstone Design projects for Undergraduate and Graduate Level EE students is very crucial because of the time and resources commitment required to successfully delivered a technical presentation based on to University Faculty on time. To effectively deliver a Capstone Design project technical presentation on time requires a project plan to be created by the Undergraduate & Graduate level EE student. The purpose of the discussion is to explain Project Management techniques that will assist the Undergraduate and Graduate Level EE student in creating a project plan that will manage time and resources for delivering a high level Capstone Design project technical presentation on time to University Faculty.

Bio: Don Wilcher is an Electrical Engineer with 18 years in Automotive Electrical & Electronics hardware/software development and Project Management. He is a graduate of Henry Ford Community College and Wayne State University. Don is a technical author with numerous articles published in electronics hobbyist magazines, trade publications, and conference proceedings. He has two books published by McGraw-Hill titled " LEGO Mindstorms Interfacing" and "LEGO Mindstorms Mechatronics". Don Wilcher is an engineering educator advocate developing pre-college engineering programs through organizations as DAPCEP (Detroit Area Pre-College Engineering), Breithaupt Vocational Technical School, and Garden City Public schools. He has taught children and adults the wonders of technology through live demonstrations at the Detroit Science Center and Cranbrook Institute of Science using LEGO Mindstorms based robots. He is a member of PMI (Project Management Institute) and ASEE (American Society for Engineering Education).

Chair's Column
Elections for 2004, Fall Section Meeting

By Maurice Snyder, IEEE/SEM Chair

Elections for 2004
The ballot for 2004 is now available from our web site and includes elections for Section Officers and Directors and Officers for all of our Eleven Chapters. I encourage you all to submit your ballot. The ballot must be signed, mailed and postmarked by October 22 to be counted. Please note that for Chapter Officers, only members of the Chapter or members of the Society the Chapter represents may vote for officers of that chapter.

Fall 2003 Section Meeting, Oct. 29, 2003
We have two Section Meetings a year, Spring and Fall. This Fall's meeting will be held at:

bps Training and Conference Center
31301 Evergreen Road (Evergreen and 13-Mile Rd.)
Beverly Hills, MI 48025

Registration starts at 5:00pm. Parallel Chapter technical sessions from 5:45 to 6:30pm. Dinner 7:00pm and Keynote speaker 7:45pm. Check http://www.ieee-sem.org/fall2003sm.html for details of each Chapter Technical Session.

The Keynote Speaker is Mr. Paul Duffy, Manager, EE CAE Dept. Ford Motor Company with topic "Analytical Methods In Automotive EE System Design".

Our twice yearly Section Meetings have been held for more than the past 12 years and are a good opportunity to hear the latest technical topics. For complete program information, see above or click here.

Volunteers Needed for 2004 Michigan Regional Future City Competition

By Don C. Bramlett, PE, IEEE/SEM Section Advisor

IEEE/SEM Section members are invited to participate in the Eleventh Annual National Engineers Week (NEW) Michigan Regional Future City Competition. For this competition, a team of middle school students, with a teacher and an engineer as mentors, will take part in a hands-on educational design experience as they design a "future city" by computer. The regional competition is open to all middle schools in Michigan.

You can be a part of the exciting Michigan Regional Competition, one of the most stimulating and rewarding pre-college educational programs with which I have had a privilege to become involved. Volunteer engineers are needed to help teams of seventh and eighth grade students and their teachers to use a computer to design and model a city of tomorrow. As a volunteer engineering mentor, you will share practical engineering skills such as teamwork, problem-solving, Computer Aided Design (CAD) and applied math and science.

A volunteer engineer will typically spend a total of 18 to 24 hours, as an advisor or counselor to a team of students, from mid-October 2003 through the date of the Michigan Regional Future City Competition. Judging for the 2004 Michigan Regional Future City Competition will be on Thursday, January 22, 2004 at the Laurel Manor conference/banquet facility (as last year), at 39000 Schoolcraft Road (Jeffries Freeway service drive), west of Newburgh Road in Livonia. The volunteer engineering mentor for the winning team of the Michigan Regional Competition will also accompany the three member student team and the teacher advisor on a free trip to the national competition in Washington DC during NEW, February 22-28, 2004.

If you should not be able to devote the time to be a volunteer engineering mentor, engineers are also needed as judges on the day of the Michigan Regional Future City Competition. You may serve on one of the overall general judging teams or on the IEEE/SEM Section Special Professional Award judging team (see the accompanying article in this issue of the Wavelengths).

The project each team of students works on consists of five phases:

1. Design a future city using SimCity 3000 software by Maxis.
2. Build a scale model of a section of the city.
3. Write a 500-word essay on a specified subject related to city planning.
4. Give oral presentations at the Michigan Regional Competition.
5. Work as a team.

The role of the volunteer engineer is to serve as a mentor to the students. The engineer may be involved in all phases of the project as an advisor to provide input and technical assistance. It is important to tie in real life engineering experiences as the students work on the project. However, the students are to do all of the actual work, such as the computer design of the future city, building the table-top model, writing the essay and giving oral presentations.

ESD-The Engineering Society will serve as the primary coordinator of the 2004 Michigan Regional Future City Competition. The sponsoring companies are DTE Energy and Ford Motor Company. As a member organization of the ESD Affiliate Council, composed of representatives of the local sections or chapters of some 40 engineering, technical and professional societies, the IEEE/SEM Section strongly encourages members to participate in this worthwhile endeavor.

A comprehensive Teacher/Engineer Volunteer Handbook is available, detailing contest specifics and providing answers to the types of questions that you as a volunteer engineer may have. To receive this free handbook or to register as a volunteer engineer, contact Nancy Strodl at ESD-The Engineering Society at (248)355-2910 ext. 152 or by email at nstrodl@esd.org . Ad-

ditional info is available at www.futurecity.org .

Judges Needed, Too

IEEE-SEM will provide a team of judges and a special professional organization award for the project having the most innovative electro-technology application. Judging will take place on Thursday, January 22, 2004 at Laurel Manor, 39000 Schoolcraft Road in Livonia. Judging will be from 8:00 AM to 11:00 AM, followed by lunch. Free parking, continental breakfast, and lunch are available that day for the judges. This pleasurable and fulfilling task only takes half a day

Please volunteer to be among those to comprise the team of IEEE/SEM special award judges.

I encourage anyone who has an interest in the science and math education of our youth or an interest in pre-college education programs to consider being a judge at the Michigan Regional Future City Competition. IEEE Student Branch members as well as regular IEEE members have found this to be a fulfilling experience in past years. As a judge myself in previous years, I have found the experience of talking with the students, finding out their interests and observing their projects/presentations to be very rewarding. So come out and spend the morning with us as we meet with some of the potential engineers, scientists and city planners of the future.

If interested in more information concerning being a judge for the IEEE-SEM professional award at the Michigan Regional Future City Competition, contact Don Bramlett at (313) 235-7549 during normal weekday business hours, or at home at (313) 525-5422 or by email at d.bramlett@ieee.org .

Events

Monday, Oct. 6, 2003, 6:30 pm
IEEE Southeast Michigan Xcom Meeting
Univ. of Michigan, Dearborn
Professional Education Center Bldg, PEC 1420
All are invited to attend.
Contact: Maurice Snyder, snyder@adi.com, 734-973-1300

Wednesday, Oct 29, 2003, 5:00 - 7:15 pm
IEEE-SEM Fall 2003 Section Meeting
bps Training and Conference Center (Evergreen & 13-Mile Rd)
31301 Evergreen Rd., Beverly Hills, MI 48025

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IEEE/SEM Chapters

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Advertising in Wavelengths

Wavelengths is published eight times a year and sent to more than 3,500 members. These readers are responsible for specifying and purchasing a wide range of electronics components, equipment, and services.

RATES

Equivalent Print Ad	Size in Pixels (max)	Annual Rate (8 issues)	Single Issue Rate
Full Page	540W x 720H	$4000	$650
Half Page	270W x 720H	$2000	$325
	540W x 360H	$2000	$325
Third Page	180W x 720H	$1500	$250
	540W x 240H	$1500	$250
Quarter Page	270W x 360H	$1000	$175
Eighth Page	270W x 180H	$500	$90

There is no extra charge for color. Special placements can be requested, and will be accommodated if possible. Payment must accompany insertion order.

For more information, contact Dan Romanchik, Wavelengths Editor, phone 734-930-6564, e-mail: danr@ieee-sem.org.