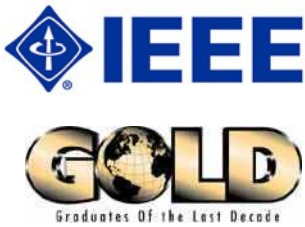


IEEE GOLDRush December 2008

The quarterly newsletter of IEEE GOLD for young professionals.



Message from 2008 MGA GOLD Committee Chair, Soon Wan

Dear IEEE GOLD Members,

On behalf of the IEEE Member and Geographic Activities (MGA) GOLD Committee, I would like to congratulate and welcome the following new GOLD Affinity Groups that were formed during the last quarter of this year:

- New Hampshire GOLD (Region 1) with Jennifer Schelly as GOLD Chair.
- Schenectady GOLD (Region 1) with Mark McDonald as GOLD Chair.
- Southern New Jersey GOLD (Region 2) with Sam Fullerton as GOLD Chair.
- Dallas GOLD (Region 5) with Mohit Malhan as GOLD Chair.
- Morocco GOLD (Region 8) with Imade Benelallam as GOLD Chair.
- South Africa (Cape Town) GOLD (Region 8) with Richardt Wilkinson as GOLD Chair.
- Tokyo GOLD (Region 10) with Yasuharu Ohgoe as GOLD Chair.

with complex and multidisciplinary problems that challenge the organization and society. MGA GOLD has used action-based learning and interdisciplinary experiences that allow our IEEE leaders to develop the skills to build and lead the organization. A successful team-based organization requires leaders to be collaborative and empowering to transform organizations from a tra-

ditional leadership environment to a shared leadership environment.

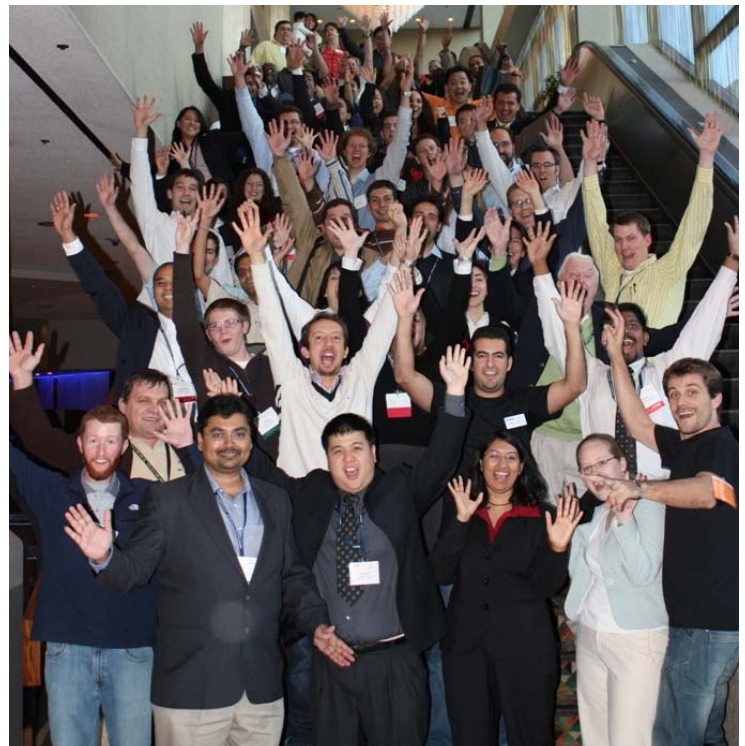
In September, MGA GOLD hosted the inaugural GOLD Summit at the Sections Congress 2008 in Quebec City, Canada. The main goal was to develop our future GOLD leaders to excel in their Region or Section activities. The Summit was a very productive and ef-

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Engineering New Leaders:

At IEEE, our leaders are faced

GOLD Delegates at GOLD Summit 2008

fective meeting in which we accomplished a lot. From the survey, the overall satisfaction was very high, and nearly all those who attended indicated that their expectations were met. One of the respondents stated, "The Summit was organized, packed, interesting and fun".

At the GOLD Summit, a new initiative program called STEP (Student Transition & Elevation Partnership) was launched. It provides a standardized yet localized program for facilitating the transition from student member to young professional, by introducing the opportunities and benefits of IEEE membership during the onset of a career. STEP encourages Sections, Chapters, GOLD Affinity Groups, and Student Branches to collaborate to host a STEP event or Graduation Reception for the local graduating students and recent graduates. The event will give students the great opportunity to meet young professionals (GOLD members), Section and Chapter officers. I strongly believe that through the STEP program, the graduating students will learn that they can trust IEEE to look after their early career development, and value IEEE as a major resource for them to utilize. For more information about STEP, please visit <http://iee.org/web/membership/gold/STEP/index.html>

The IEEE Humanitarian workshop is another initiative program that MGA GOLD organized to engage our young members to be the leaders in humanitarian causes. The workshop was held at Boston University on October 18, 2008,

and we had more than 120 participants. John Vig (IEEE President-Elect), Dick Gowen (IEEE Foundation President), Howard Michel (Region 1 Director), Tom Weiner (IEEE ICEO President-Elect), and Michael Andrews (Chair for IEEE Humanitarian Technology Challenge) attended the workshop. They provided the participants with information on IEEE efforts on humanitarian causes. Then, the 6 keynote speakers (from UN Foundation, Engineers Without Borders, MIT Public Service Center, and LinkNet Zambia) educated the audience about projects that they were working on. All the workshop presentations are posted at

<http://www.ewh.ieee.org/reg/1/gold/humanitarian-workshop/schedule.html>

We want to bring in the best leaders with a combination of fresh thinking and experience. All the three activities mentioned earlier have provided the environment to nurture our future IEEE leaders. Remember, volunteering at IEEE is a

unique component of the IEEE experience. You can gain soft skills that you might not learn from school or during your early career, and it is for free. I hope that all the GOLD initiatives will help members share insights into how volunteering with IEEE has helped them develop leadership skills that can be transferred directly to their work environment.

This edition of GOLDRush will be the last this year, and it is also my last message as the MGA GOLD Chair. It is a great honor to have been the GOLD Chair for the last two years. This is a very exciting position, and a great opportunity to pursue my IEEE volunteering interests. I have met and made a lot of friends around the world, and have increased my network with the IEEE leaders from major boards and the leadership of IEEE as a whole. I have been very fortunate to have a great composition of GOLD volunteers, all filled with positive energy and passion, and all with one common goal to bring

values and benefits to our IEEE membership. It was my pleasure to work with them, and I will always treasure their friendship, and will remember all the great work that they have done for the GOLD community worldwide.

Finally, I would like to encourage you to connect with your local Section, Chapters, Student Branches, and GOLD Affinity Groups, and consider volunteering for IEEE. I promise you will find it is the greatest benefit of your membership. Wish you a Merry Christmas and Happy New Year 2009.

Best wishes,



Soon Wan
2007-2008 MGA GOLD
Committee Chair



IEEE Future Leaders at the GOLD Summit in Quebec City, Canada.

GOLD News

EDS Launches A Host of New Initiatives for Young Professionals

By Ravi Todi,
EDS IEEE GOLD Representative

In an effort to increase value for young professionals, EDS has launched a host of new initiatives. As the EDS IEEE GOLD representative, I am happy to report on these new initiatives.

EDS GOLD Committee

An EDS GOLD AdHoc Committee dedicated to better serving students and young professionals is being established. This committee is charged to establish programs

- to better serve the needs of students and recent graduate professionals.
- to get young members involved in society activities.
- to effectively bridge the gap between student, GOLD and senior members.
- to increase and provide sustained membership growth.
- to help young professionals with career opportunities within an EDS field of interest.

The committee will be composed of 20 members with 14 serving on technical sub-committees, five on the existing standing committees and one as a student representative.

In addition to the creation of the EDS GOLD AdHoc committee, we will be creating a Career Assistance Sub-Committee, responsible for developing materials and programs for providing career guidance and assistance to students and young members.

EDS Student/GOLD Ambassador Lecture Program

The Student/GOLD Ambassador Program is a joint initiative between the EDS GOLD and Education committees. The key objectives of this program are: (1) to better serve needs of students and recent graduates; (2) to provide effective communication between student branch chapters; (3) to develop stronger student branch chapters and; (4) to increase the number of student branch chapters and provide sustained growth in membership.

To start the program, there will be one ambassador appointed for each of the following five geographical areas: North America East (Regions 1-3 & 7); North America West (Regions 4-6); Europe, Middle East & Africa (Region 8); Latin America (Region 9); and Asia & Pacific (Region 10). More details on this program are to be made available on the EDS web page shortly.

IEEE EDS Early Career Award

EDS approved the establishment of an Early Career Award, at its June 2008 AdCom meeting and if approved by the IEEE, the call for nominations for the first award will go out in early 2009.

The EDS Early Career Award will be awarded annually to promote, recognize and support Early Career Development within an EDS field of interest.

To be eligible, the candidate must be an IEEE EDS GOLD member at the time of nomination and making

contributions in an EDS field of interest. Previous award winners are ineligible. A stipend of US\$1,000, a certificate; and if needed, travel expenses is offered to attend the award presentation at the annual EDS GOLD Lecture held in conjunction with the IEEE International Electron Devices Meeting (IEDM).

More details are to be made available once the award is officially approved by IEEE.

New student article added to the EDS newsletter

To help promote student chapter activities and membership, the Society has decided to reinstate the Chapter Student/Young Engineer feature in the EDS Newsletter. The biannual articles will be written by members of EDS student branch chapters. A full page will be dedicated to this new feature and we will encourage authors to submit photos related to their chapter events.

Any initiative is only as successful as volunteers make it. So if you are interested in getting involved with any of these new initiatives, please contact me immediately. Please send me an email indicating what you would like to be involved with, including your short bio. If you are interested in serving on the GOLD committee, you will be expected to attend at least one meeting a year, and typically there is no financial support available to attend this meeting. For any additional information please contact Ravi Todi (rtodi@ieee.org).

Houston Section visits Region 10 GOLD groups

By Kheng Swee Goh
Chair of Houston Section GOLD Affinity Group, Region 5

During the 2008 Sections Congress in Quebec City, Canada, we had our first GOLD Summit. Summit Leaders from each region were teamed up with each other to come up with some ideas on how regions could increase interactions between regions/sections. I was representing Region 5, and I was paired up with Tim Wong from Region 10. One of the ideas that we came up with was to try to meet up with local GOLD groups while we travel, and as it turned out, between October to November of 2008, I was about to make a trip to Malaysia, Singapore and Perth (Australia). This was really a personal trip; I guess there's nothing like practicing what we preached!!

So I loaded my bag with some nice souvenirs from Houston GOLD, and set off to "search for GOLD"!

I first met up with Singapore GOLD. I contacted Dr. So Ping Lam, who could not make the meeting but arranged for Darrel Chong and Zhou Yi to meet me. We met at the New Asia Bar, the tallest bar in Singapore, up 71 floors at the Raffles City tower. The VIP lounge (which our friendly waitress, Wendy, allowed us to use) is located a floor higher, surrounded by nothing but floor-to-ceiling windows, allowing us to enjoy the breath-taking views of the Singapore skyline. My little camera

could not do justice to the actual sight you can see up there. Zhou Yi is originally from China, studied in National University of Singapore and is now living and working there too. He is also the current GOLD Chair. While not in the GOLD committee at present, Darrel Chong had great experience in the past committee, and gave me a quick historical overview while Zhou Yi gave me the current status of Singapore GOLD. There are marked differences between Singapore GOLD and us in Region 5. We talked about our experiences in our GOLD AGs and exchanged some ideas on how we could "borrow" some of our ideas from each other to use in our GOLD AGs. In our discussion, we also noted that Singapore is home to many hi-tech companies. Singapore GOLD might try to take advantage of this in future events and sponsorship.



(L-R) Kheng Swee Goh presenting Zhou Yi and Darrel Chong with a souvenir from Houston GOLD at New Asia Bar, up on the 72nd floor of Raffles City Towers – with the scenic Singapore skyline in the background.



Kheng Swee Goh with Malaysia GOLD AG Committee, while enjoying a meal of Nasi Briyani

In the picture (from top, clockwise): Kheng Swee Goh (Houston GOLD Chair), Mohd Zainal Abidin Abdul Kadir (Malaysia GOLD member), Iqbal Saripan (Malaysia GOLD Treasurer), and Fairuz Bin Abdullah (Malaysia GOLD Chair)

Next, I met up with the members of Malaysia GOLD. They were also very friendly and gave me a very warm welcome. Fairuz Bin Abdullah (Chair), Iqbal Saripan (the Treasurer), Mohd Zainal Abidin Abdul Kadir (an active IEEE member) took me for a delicious meal at a Nasi Briyani restaurant. We shared our stories and I was glad to hear they were quite an active group in Malaysia. Fairuz is a professor at UNITEN, a University owned by Tenaga Nasional, the national utility company in Malaysia. The obvious advantage that came to me right away was that Malaysia GOLD has easy access to visiting various power stations, which they have already done numerous times! They were also intrigued to learn that many of our

GOLD groups are already on Facebook and agreed that they will look into getting Malaysia GOLD into Facebook too. All in all, it was great to hear what my fellow countrymen were doing with their GOLD AG. I was also pleased to find out I share a common sport as Iqbal. We are both keen badminton players. We have already agreed that we should get a game together on my next trip back home!

Finally I went to Perth, Australia. I spent the most time with this group and I was given the royal welcome and great Australian hospitality by Tim (Western Australia GOLD Chair), Helene (R10 GOLD Coordinator and past WA GOLD Chair), David Hng (WA GOLD Treasurer), and the local wildlife - some encounters, like those with the local sand flies, were a bit too close for comfort! Our planned meeting was supposed to be a breakfast meeting, but prior to that, I was even lucky enough to have bumped into past WA GOLD chair, David Lim, the night before since he could not make it to the breakfast meeting. I had the chance to chat with everyone and share my own experiences with GOLD as well as the way the GOLD affinity group operates in WA. WA Section is quite unique because their next nearest section is some 4 hours away by plane; in Houston, all we need to do is to hop in the car and drive for 30 minutes!

I was pretty impressed by the great balance of a high level of professionalism and commitment to WA GOLD as well as a great sense of teamwork by the committee members. Managing a GOLD group and ensuring a close working relationship with student branches in WA section is



An unplanned meeting with David Lim (left), past Chair for WA GOLD at a restaurant in Perth

certainly not an easy job, but Tim and his group seem to have no problems.

In our breakfast meeting at a café on beautiful Cottesloe Beach overlooking the Indian Ocean, we chatted as I tried my first ever Tasmanian salmon. As a natural progression following the GOLD Summit discussions, we exchanged ideas about the direction GOLD activities around the world are heading, as well as how our respective groups operate and the upcoming events planned. Another thing about WA that impressed me was that unlike my group, they received no funding from the section! Instead these entrepreneurs got the section's blessing to seek industry sponsorship several years ago, and have been running on sponsorship funding.



Breakfast meeting with WA GOLD at Cottesloe Beach – with my Tasmanian Salmon Eggs Benedict in the foreground!

Due to the different nature of our GOLD groups, there will definitely be ideas which, while working for one group, cannot be meaningfully replicated in the other. But by establishing contact during my travels, I feel that I have now built bridges with these GOLD groups, and I certainly look forward to working with Singapore, Malaysia and Western Australia GOLD again in the near future.



Kheng Swee Goh (right) exchanging souvenirs with WA GOLD. (L-R): Helene Fung, Tim Wong, and David Hng at the Dome Café

Sharing experiences (and good food too!)

By **Helene Hoi-Ying Fung**,
Region 10 GOLD Coordinator

After attending the Sections Congress in Quebec City, I stopped over in Hong Kong for a few days.

Having been born in Hong Kong, and lived there until I was 14, I still have family and friends in Hong Kong whom I like to catch up with; plus I also felt like giving my legs, hands and credit card a bit of a work out through a mini shopping spree!

While in town, I contacted Hong Kong delegates I met at the Region 10 GOLD and Women in Engineering Congress in Chennai, India back in January 2008, who promptly arranged for a catch up dinner the next night - I happened to arrive just before a public holiday so everyone was available! I was also introduced to other Hong Kong GOLD committee members and representatives from two student

branches.

Because I was also once Region 10's Student Representative, the student branch chairs took the chance to bombard me with questions about what they can try to do to attract more student members.

Hong Kong GOLD is among one of the earlier-established GOLD groups in Region 10. With experience under their belts, these enthusiastic volunteers indicated an interest in getting involved in IEEE beyond organising local activities such as seminars, site visits, and social and charity events.

For example, they are working with the young member branches of other engineering institutions in Hong Kong to assist in rebuilding efforts after the devastating May earthquake in Sichuan, China; they are also assisting me in contacting Chinese sections to help facilitate formation of new local GOLD groups if those sections are

interested. During the dinner we also discussed other IEEE volunteering opportunities at Region 10 and other levels that they may be interested in.

It was a great opportunity for me to get an understanding beyond the GOLD activity reports I received earlier in the year, as well as to touch base with friends I made in Chennai and to make new ones!



Region 10 GOLD Coordinator Helene Fung (3rd from right) with representatives from Hong Kong section GOLD, student branches and WIE.

GOLD Reception at the SMC Annual Conference

By **Wing Ng**
GOLD Representative (Asia-Pacific),
IEEE SMCS

We organized a GOLD Reception at the annual SMC (Systems, Man, and Cybernetics) conference held in Singapore on 14th October 2008. More than 70 people participated in the event. The President, VPs and BoG members of the SMC Society also attended the reception.

The Past President Michael Smith presented the benefits of joining the IEEE and the SMC Society while the GOLD Representative (Asia Pacific) Wing Ng presented criteria for joining at different grades of memberships. The Student Activity Coordinator

Patrick Chan presented special benefits for student members and reported a significant increase in the number of student branch chapters this year. By the end of October, there were six SMC Student Branch Chapters (SBC) being established, three waiting for approval and four at various stages of processing. To show our appreciation of the efforts by the SBCs, the SMC President Daniel Yeung presented certificates to the 6 SBC advisors and committee members.

After the presentation, potential and current GOLD members had a warm discussion with the President, VPs and BoG members of the society. After the reception, some attendees indicated that they wanted to join the society.



Daniel Yeung presents certificates to appreciate the efforts of SBC Advisors and Committee Members

IEEE GOLDRush Special Feature: GOLD Awards 2008

2008 MGA Awards — GOLD Recipients

On November 13, 2008, the MGA Awards & Recognition Committee reviewed many GOLD member nominations for the 2008 MGA Awards. The MGA Board has approved the GOLD awardees, and they are as follows.

MGA GOLD Achievement Award

This award is designed to recognize those substantive projects or achievements of a relatively short nature (one to three years) but which have left an undeniable imprint on the fabric of GOLD operations. The award is based on a selection that recognizes individuals involved with GOLD activities who are recognized for singular achievement in the development and completion of a project(s) or activity(ies) which are directed to the fulfillment of one or more of the GOLD goals and/or objectives. The individuals nominated must be GOLD members at the time of nomination.

Irena Atov, Victorian Section (Region 10)

“For her organization and leadership of the implementation of GOLD track programs at IEEE conferences, and the GOLD Academic Portal on the IEEE Job Site.”



Megha Joshi, Uttar Pradesh Section (Region 10)

“For outstanding contributions to the Student Transition Project and STEP (Student Transition & Elevation Partnership) program.”



Yasuharu Ohgoe, Tokyo Section (Region 10)

“For his strong leadership in planning and organizing the inaugural GOLD Summit 2008.”



Adrian Pais, Benelux Section (Region 8)

“For extraordinary leadership and valuable contributions to the development of the IEEE GOLDRush newsletter.”



MGA Achievement Award

The purpose of this award is to recognize individuals involved with MGA and/or the Regional Network who are recognized for singular achievement in the development and completion of a project(s) or activity(ies) which are directed to the fulfillment of one or more of the goals and objectives of MGA. This award is designed to recognize those substantive projects or achievements of a relatively short nature (one to three years) but which have left an undeniable imprint on the fabric of Regional Operations.

Ravi Todi, Mid-Hudson Section (Region 1)

Ahmed Osama Mikkawi, Egypt Section (Region 8)

“For his outstanding leadership and sustaining contributions to IEEE across local and technical activities.”

“For his outstanding efforts in the GOLD and Women in Engineering programs for fostering inspiration among IEEE members.”



MGA Innovation Award

This award recognizes the accomplishment judged to be the most innovative and effective in fulfilling one or more of the goals and objectives of MGA and/or the personal goals of the Vice President of Member and Geographic Activities.

Prijoe Philips Komattu, Madras Section (Region 10)

Joint award with Mini S. Thomas, Delhi Section and S.Gopakumar, Kerala Section.

“For their inspirational development of the Global Integrated Network of IEEE (GINI) which will provide increased value of IEEE membership to the students of Region 10.”



Peer-reviewed Contributions

Changing the Way We Write Software

By **Rodrigo Dominguez**
(IEEE Member)

The computer industry is going through a shift in the way software is developed. The past decade was characterized by increasing clock frequencies and rising transistor densities. Moore's Law – named after Intel's co-founder Gordon Moore – stated that the number of transistors on a chip would double every 18 months. This translated into more complex and more efficient microprocessors. This was good news for software developers. I like to use the analogy of a person who has to drive between two cities. If this person is given a better car every year, it will take him less time to complete the trip. Software developers were given a better microprocessor each year and without having to change their code, their programs just ran faster.

However, by the end of the decade, chip manufacturers started to hit a wall – a power wall. The power consumption of a microprocessor is mostly due to the switching of the transistors. This is called the dynamic power and is given by the formula $P_d = \frac{1}{2} CV^2f$, where P_d is the dynamic power, C is the capacitive load and is a function of the number of transistors, V is the operating voltage, and f is the clock frequency. With the

frequency and the capacitance increasing year after year, microprocessors were already surpassing the 100 Watts line. In addition to that, the complexity of the microprocessor was reaching a point of diminishing returns. In the mean time, Moore's Law still held true, raising the question of what to do with all the extra transistors.

With these limitations getting in the way of better performance, manufacturers have changed their approach and have started fabricating chips with multiple cores. The core is the part of the microprocessor in charge of the main execution of the instructions. This change enables the parallel execution of multiple processes running on a system and therefore, it improves the overall throughput of the chip. However, this doesn't improve the execution time of a single-process system. Using again the same analogy, it is as if the person was given two cars to drive – there is not much he can do with two cars when he can only drive one car at a time. In order for software developers to get the best out of this new model they have to rewrite their programs to split them into multiple processes.

Programming under this model has its own challenges. A developer has to make explicit use of synchronization primitives in order to coordinate the access to shared variables between the processes. It

is not always intuitive to do this right, especially when having to consider code from libraries. The incorrect use of the synchronization primitives can lead to data races, a common problem in parallel programs where the output depends on the particular order of execution of the processes. This is one of the main sources of bugs in parallel applications.

In the future, microprocessors will continue to adapt to the low-power requirements of the industry. The trend towards multiple cores seems to continue with quad-core chips already in the market. There is a lot of research in industry and academia to find an easier way for developers to write parallel programs and at the same time achieve better scalability.



Rodrigo Dominguez has a BS in Electronic Engineering from Universidad Javeriana in Colombia and an MS in Electrical and Computer Engineering from the Georgia Institute of Technology. He is now a PhD candidate in Computer Engineering at Northeastern University working on hardware and software co design.

Electronic Pills: Effective Technique for Medication Compliance

By Andrew Nguyen
(IEEE Student Member)

The average development cost of a drug for US pharmaceutical companies is about 800 million US dollars, of which a significant portion is spent on the drug's clinical trial. The success of clinical trials depends largely on the compliance of participating patients. Medication compliance affects not only the drug's development cost and, in turn, the medicine cost born by health-care providers and consumers, but also the significance, accuracy and reliability of the analysis of collected data. For the health care of patients, medical professionals need to keep track of prescribed medicine taken by patients – particularly elderly adults or those with Alzheimer's disease. Medication compliance is one of the most concerned issues not only for drug development, but also for physicians who monitor the medication being taken by patients.

Presently, various procedures are used for the monitoring of medication compliance, such as direct observation of patients, testing of blood or urine, or counting pills, with varying compliance rates. Among these, the direct observation of patients reports the highest compliance rate but is inconvenient, time-consuming and costly to implement due to the need of having patients to be present and observed during drug taking at a

medical facility. Implementing advanced technologies that have been developed in other areas such as RF electronics could provide a potential solution to remedy the problems of compliance rate, cost and convenience for medication compliance. Radio-frequency identification (RFID) is one of the most significantly advanced technologies in the past decade and has profound impact on various applications. Basic objectives of RFID systems are to acquire, store, process and report specific data or information about objects at an appropriate time and location, determined by users or operators, via wireless means. RFID is very attractive for medical applications. Electronic pill, implemented together with RFID technology, can potentially revolutionize the medication compliance.

The electronic pill is implemented using a gelatin capsule containing medicine, as in conventional capsules, with a bio-compatible antenna printed on the capsule's surface and may consist of a tiny bio-compatible microchip. The electronic pill is ingested and dissolves in the patient's stomach as normal pills and, once inside the body, acts as a tag and works together with a reader attached directly on or placed externally to the body as an RFID system for medication compliance purposes. Medication compliance information gathered by the reader from the electronic pill can be read directly or transmitted to a router, PC or PDA device connected to

the internet, from which the data can be viewed by authorized personnel in remote locations. The PC or PDA can also be used to store the compliance data, analyze and display them in a useful format for immediate use by someone such as an in-house caretaker. The reader can also be configured as a mobile handheld device operated by a medical professional to read the patient's medication compliance data on his/her visit to the doctor's office. The microchip, if included, can be powered externally using RF energy sent by the reader and captured by the capsule's antenna, without the need of its own battery – a desirable feature ensuring patient's safety and reducing cost and size. Possible operating frequencies can be in the Medical Implant Communications Service band (402-405 MHz) or Wireless Medical Telemetry Service band (608-614 MHz).

Electronic pills promise to enhance the medication compliance not only for drug companies but also for medical professionals in monitoring and treatment of patients. Significant research and development, however, still need to be conducted to develop such (bio-compatible) electronic pills that meet Federal Drug Administration (FDA)'s requirements and receive FDA approval to ensure safe ingestion for patients.



Andrew Nguyen is currently a premed student at the University of California, Irvine.

Notices

Upcoming IEEE Webinars

Keep an “Eye Open” for these upcoming IEEE Webinars:

IEEE GOLD is sponsoring a series of webinars scheduled for Saturdays in January, February and March 2009. The specific dates and times are being confirmed. The topics are:

Seminar 1 (January): “Navigating a globalized, turbulent business landscape – what engineers need to know”

Seminar 2 (February): “How engineers and marketers work together to create new products in innovative companies”

Seminar 3 (March): “Career change: how engineers can contribute in a business/commercial role for a technology company”

Biography of the speaker: Arun Gopalakrishnan has worked for the DuPont Company as a Market Manager in Wilmington, Delaware since July 2006. Arun’s first role at DuPont was

providing marketing consulting to startup businesses within the company. He moved to his current role in DuPont’s Performance Elastomers division in August 2007, where he sets the global strategy and drives revenue growth in the Energy, Oil & Gas business segment. Arun’s areas of specialty include innovation processes, business development, and pricing and profitability management.



Once dates and times are confirmed, they will be posted on the IEEE GOLD website at <http://www.ieee.org/events>.

Join in IEEE’s 125th Anniversary Virtual GOLD Event

In 2009, IEEE will celebrate 125 Years of Engineering the Future with a year-long celebration around the globe. IEEE Graduates of the Last Decade (GOLD) have started their own virtual 125th Anniversary event by inviting members to create short video clips that will be connected to form a fun anniversary video with worldwide participation.

The concept is simple – GOLD members are encouraged to visit the Web site at <http://kom.aau.dk/~jf/ieee/>, view the video, download and print out a copy of the IEEE’s 125th Anniversary mark, and create their own 10 second video clip where it appears as if they are passing along the Anniversary

mark from person to person, and from place to place. GOLD volunteer Joao Figueiras, who conceived the project, is maintaining the website and connecting the short clips to make the larger video.

The end result is a video that takes the IEEE 125th anniversary mark – and the celebration – all across the world. Guidelines and specifications for making and posting videos are found on the Web site. For general information on the 125th Anniversary of the IEEE, visit www.ieee125.org.



Call for Papers

WWW.Earthzine.org is soliciting articles for its theme issue on observing and monitoring **BIODIVERSITY**.

www.Earthzine.org is an informative scientific webzine dedicated to promoting global interconnections among Earth observers. It is sponsored by IEEE (Institute of Electrical and Electronic Engineers) in support of the Group on Earth Observation's Global Earth Observation System of Systems.

May we invite you to examine Earthzine, and to submit an article to us? We can offer as incentives participation in building the Global Earth Observation System of Systems (GEOSS), and the values of being part of a professionally diverse and global readership network. In less than a year, Earthzine has developed a readership of more than 8,000 in more than 100 countries.

We are most interested in receiving articles dealing with the issues at the forefront of global or regional biodiversity concerns. Topics focusing on but not limited to biodiversity in ocean ecosystems and on the impact of deforestation and land conversion, climate, and invasive species are all of interest. Types of articles we are interested in receiving are program, project, organization descriptions; latest discoveries, unusual findings, examples of interdisciplinary and/or cross-regional research. We also publish opinions, letters, book and art reviews.

Please consult the Writer's Guidelines (see below for the link).

Do you have other topics to propose? Can you recommend others to contact? We would be most grateful for any assistance you can provide to www.Earthzine.org.

Please submit articles in a format compatible with Microsoft Word to mhickok@earthzine.org

GEO/GEOSS website: <http://www.earthobservations.org/>

Writer's Guidelines: <http://www.earthzine.org/about-2/writers-guidelines/>

Articles from IEEE The Institute

IEEE Fellows Accomplishing More at Younger Ages

Republished with permission from The Institute, December 2008, Vol. 32 No.4.

By John R. Platt

IEEE Fellows are a select class of members. To become a Fellow, nominees must have achieved an extraordinary record of accomplishments in one of the IEEE fields of interest. The accomplishments should have contributed in an important way to the advancement or application of engineering, science, or technology and have provided significant value to society. But how long does it take to make such outstanding contributions? Must you work decades, or can you be acknowledged for breakthroughs made early in your career?

This year's class of IEEE Fellows proves that you need not be in the twilight of your career or have worked in your field for many years to have accomplished something significant. The 2008 class boasts 182 out of 295 new Fellows between the ages of 31 and 54.

Four of the "young" Fellows have something in common: they're working to make everyday life easier.

A WIRELESS LEADER The next time you use your laptop to check your e-mail, think about William Webb, whose work in wireless technology helped make Wi-Fi possible. Webb, 41, is head of R&D and is senior technologist at the UK telecommunications regulator Ofcom. He was elevated in the Fellow technical leader category for his "leadership in the

deployment of third-generation mobile and wireless LAN technology."

Webb began making his mark in 1991 with variable-level modulation, which he developed while at British Telecom (now known as BT). Webb observed that the strength of a wireless signal—and therefore the amount of information that could be sent over it—varied depending on how close the user was to a base station or tower.

"I came up with the idea of dynamically varying the amount of information you send based on the strength of the signal the users are receiving," he says. That concept has become the basis of Wi-Fi technology.

ONLINE EDUCATOR Manuel Castro's research has helped universities expand their services to students learning at home or in the office. The 50-year-old is an electronics technology professor in Spain at the National University for Distance Education (better known as UNED). He was cited in the educator category for contributions to distance learning in electrical and computer engineering education. Castro's research has touched a number of fields, including advanced microprocessor system simulation and telematics, as well as distance learning.

It's that last area where Castro has had his greatest impact. His research has examined and helped overcome some of the barriers to online education, including providing effective and secure access to course materials to a variety of locations and over differing hardware platforms, remote support

and training, designs for teaching environments, and the use of multi-media as a learning resource.

He also has examined how course content and teaching styles can be adapted to online learning. With many thousands of students now taking online classes every semester, Castro's work is already influencing the future of education.

LIVING ENVIRONMENTS Diane Cook, 45, a professor of computer science in the School of Electrical Engineering and Computer Science at Washington State University, in Pullman, is working to make your home smart enough to monitor your health and to automate functions for people with disabilities. Cook's research encompasses a broad range of fields, including artificial intelligence, machine learning, data mining, robotics, smart environments, and parallel algorithms for artificial intelligence. She was elevated for "contributions to machine learning algorithm design and application" in the research engineer/scientist category.

Cook's smart-home research first used sensors to gather information regarding such things as motion, temperature, lighting, humidity, the use of doors, and interaction with electronic devices. The data was then mined to find the sequences of events that frequently recurred and predict when they would happen again. Actions were then automated. "Now we're trying to adapt to higher-end applications like health monitoring and improving energy efficiency—which will impact a

significant part of the population," Cook says.

SIGHT TO THE SIGHTLESS

Gianluca Lazzi's work may make it possible for blind people to see someday. Lazzi is a professor in the department of electrical and computer engineering at North Carolina State University, in Raleigh. At 38, he was honored for his work as a research engineer and scientist for "contributions to bioelectro-magnetics

and implantable devices."

Lazzi's research in the field of bioelectromagnetics led to his becoming a principal investigator on the U.S. Department of Energy's Artificial Retina Project, a multi-institutional collaborative effort among government agencies, universities, and companies to develop and implant an array of microelectrodes into the eyes of people blinded by retinal disease. The project aims to restore limited

vision and thereby enable mobility, facial recognition, and even reading.

If you know of an IEEE senior member doing outstanding work, consider nominating that person for the Fellow class of 2010. The deadline is 1 March 2009.

FOR MORE INFORMATION about IEEE Fellows, visit <http://www.ieee.org/go/fellows>.

Anniversary Celebrations Planned Worldwide

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By Marsha Longshore

From San Jose, Calif., to Boston and from Bangalore, India, to Beijing, excitement is spreading about IEEE's 125th anniversary, taking place next year. Sections in those four cities are among the eight selected by the IEEE Anniversary Committee to hold celebrations sponsored by the IEEE Board of Directors. The other four Board-sponsored section events are slated for Austin, Texas; London; Munich; and Tokyo.

"These major world cities were selected to bring members and IEEE's customers together to celebrate and bring attention to IEEE and the contributions of the technology professions to humanity," says 2008 IEEE President-Elect John Vig, chair of the anniversary committee. "But they are by no means the only anniversary celebrations. We're encouraging all IEEE groups to plan anniversary events throughout the year and throughout the world."

The eight anniversary parties represent only a small percent of the celebrations scheduled to take place.

Representatives from 218 of the 239 sections who attended the IEEE Sections Congress, held in September in Quebec City, committed to hosting a local anniversary event in 2009 with their members and student branches. In addition, many IEEE societies plan to highlight the anniversary during their major conferences and local meetings. The number of planned events on the anniversary site's calendar continues to grow each day.

Here's a sample of anniversary plans in the works:

- The College of Engineering in Chengannur, Kerala, India, is set to celebrate the anniversary in January during a three-day biennial technical festival for students. Summit '09 is expected to bring together more than 1000 students from colleges across the country for activities designed to enhance the participants' technical competence and managerial skills.
- Organizers of the IEEE International Solid-State Circuits Conference, being held 8 to 12 February in San -

Francisco, plan to recognize the anniversary in conference materials and at selected sessions.

- The Eurocon 2009 conference, from 18 to 23 May in St. Petersburg, Russia, is set to celebrate IEEE's 125th along with the 150th anniversary of the birth of Alexander S. Popov, the Russian physicist who first demonstrated the practical application of electromagnetic waves.

- One of the most prestigious celebrations of the year is taking place in Los Angeles on 27 June at the 2009 IEEE Honors Ceremony, which has adopted the anniversary theme Celebrating 125 Years of Engineering the Future. Among the honorees are the top three winners of the IEEE Presidents' Change the World Competition for students. [See "Competition Challenges Students to Change the World," September, p. 4.] (There's still time to submit entries by the 28 February 2009 deadline.)

For more information about these and other anniversary events, visit the IEEE 125th anniversary calendar at <http://www.ieee125.org>.

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