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GOLD*Rush*

September 2011

Featured in this issue

Annual GOLD meeting update

2012 MGA GOLD Chairperson profile: Eva Lang

The 2011 IEEE GOLD Summit

Santa Clara Valley GOLD Affinity Group Profile

Startups and Small Businesses - A baptism by fire

Computing with Words and Evolutionary Robotics

GOLD
Graduates Of the Last Decade

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In this issue
September 2011

From the Editor
Timothy Wong

Welcome to yet another edition of GOLDRush. Since the last edition, we have had a number of exciting GOLD events around the world including the IEEE GOLD Summit and Sections Congress that was held at San Francisco from 16-22nd August.

In this edition, we have provided coverage on the IEEE GOLD Summit and joint Region 10 Student/GOLD/Women in Engineering Congress held in Auckland. There have many exciting developments since June and we hope you enjoy reading this edition of GOLDRush.

If you would like to submit an article to GOLDRush or have any bright or interesting ideas to include, please feel free to email me at goldrush@ieee.org. We rely on our readers and IEEE members like you to make GOLDRush an ongoing success.

Happy reading! ∎

Timothy Wong
2011 Editor in Chief

Welcome from the 2011 MGA GOLD Chair
William Sommerville

Dear IEEE GOLD members,

I sometimes wonder about what it is that makes an engineer great. I think we all want to be great at something, and I think perhaps IEEE members are a little more biased towards improving their skills than the general population. Even so, what is it that makes an engineer great? How do you find that right combination of specific subject area skills, general knowledge skills, people skills, and every other skill that plays into the art and science of engineering? I say the word "art" because while engineering is centered on science, it goes beyond science in the sense that engineers create what has not been created before.

I think we are programmed by our schooling to amass skills, both technical and non-technical, in the pursuit of becoming a better professional. IEEE has a lot to offer in this area, with the eLearning Library, GOLD Webinars, conference tutorials, and other resources. Alas, I have come to discover that simply balancing "hard" and "soft" skills is not enough to make us great engineers or great professionals.

I would argue that the third trait of a great engineer is dedication. Great engineers are competent, yes, but they have enthusiasm and drive to attack problems and inspire others to help. Great engineers are on a mission, they are focused on achieving something and they instantly stand out in a crowd of competent yet uninspired professionals. It is a great privilege of being a member of IEEE in that we are able to meet and befriend great individuals who have honed their skills while embarking on a lifelong quest for excellence and making meaningful contributions to humanity.

My request to you, as you read through this edition of GOLDRush, is that you think about how the stories here can help you become more motivated and more inspired to do great things. If someone mentions a topic that you are passionate about, please contact them and find a way to collaborate or simply share a few ideas. While it is always good to ask yourself what skills you need to learn, I would like you to occasionally ask what attitudes and perspectives can you learn to be truly great.

Stay excellent! ∎

Will Sommerville
2011 MGA GOLD Committee Chair

Front cover
photo credit:
Timothy Wong

IEEE GOLD Rush

Readers' Forum
Your questions and opinions

You cannot find success on the road. Sure, there are such cases, but believe me, they are not yours (they are unique). If you are really resolved to achieve success in your profession, you will need to find your path. How do you determine or find this path?

Many people stop developing professionally due to obstacles they come across such as an indeterminacy, when they do not have someone who can advise them, someone whose wisdom can help them find a better way. They face the problem of finding answers by themselves. Of course, providing this is a great honour -- to be able and to have an opportunity to work and to live in your own way, to be self-determined. In this case, you have the freedom to make decisions, to have your own point of view, to be right. But this is also a state in which you cannot relax. You live your own life, but you live in a society, a specific culture, with specific needs; you are connected with the world. This is why you cannot be absolutely free even in your mind. So, how can you be wise when judging things you don't have answers for?

The first thing you should remember is to remain calm. Being ready to decide is better than being disappointed. You need some kind of psychological therapy, like the mental therapy John Nash noticed in one of his interviews when talking about his strive to use a computer in work instead of being like many of his colleagues who didn't use computers. This therapy should give you constancy in directing you to your goal despite the difficulties and the constancy to move forward when other people think there is no way. You will face powerful psychological stress, emotional and moral pressure and will be dependent on a variety of resources. You need this training to do things right, to think reasonably, to be able to find a solution regardless of the time constraints or how much stress you are under. Being calm and focused is more important than just being in action (no matter how it sounds) because if you understand the situation, if you put it in your memory, then you are able to act, to act rightly and to gain success. Just being in action is nothing without immersing yourself deeply in the subject area.

The second point is a continuation of the first one. If you are able to stay determined through the avalanche of stress, then you should be able to learn how to win in a stressful situation. What does this mean? This means that being at the peak of stress should not prevent you from being able to produce a winning combination. It doesn't matter how much you push yourself, how much you concentrate, you should, you must do this. Only by learning how to cope with stress can you bring about a victory. Only after passing through this fence, through this barbed wire, will you move to a new stage. Winners do not use any other technique, just this technique of strong will and unceasing self-control.

Last, but not least, the third component is your ability to superpose, to arrange things, to make combinations of objects in your mind, producing new, innovative, creative solutions. This can help you to leap ahead, to find appropriate and optimal solutions. Some call it Memory Readiness, others Abstract Thinking (for example, Charles Darwin once wrote that he was able to remember required information when needed or, at least, to remember where to find it). This force is widely graduated, but the good news is that you can train yourself with your experience and knowledge when trying to solve complex tasks. You can be like the famous 'Iron Samson' Alexander Zass developed his own training system, Isometry, and in due time was called the strongest man on Earth by *The Daily Telegraph* and *The Manchester Guardian* for his tremendous strength that he demonstrated in spite of his unimpressive physique.

Sure, this is just psychology while success requires much more to achieve. But before you get any other power in your hands, you need to be ready, to be mature. Only a ripe kernel can give you a shoot of wheat. When you are ready, you will find the right opportunities. ∎

Annual GOLD Meeting Update

William Sommerville, MGA GOLD Chair

Each year, IEEE MGA GOLD holds a committee meeting to plan the way forward to serve IEEE GOLD members better. The MGA GOLD Chair, William Sommerville provides an account of the 2011 MGA GOLD meeting.

Once a year we gather the GOLD Regional Coordinators and many other GOLD Volunteers together for our annual MGA GOLD Committee Meeting. These meetings give us an opportunity to synchronize our volunteer efforts around the world towards a common purpose – to inspire, engage, energize, and elevate our GOLD members. The last several years have infused attendees with great enthusiasm for our strategic plan, formulated in 2009, which gives us a way to focus our efforts on what is really important to our members. This mission, vision, and goals is a great reference whenever we stop to ask ourselves what is really important to us and how we should spend precious time and resources.

This year's GOLD Committee meeting, held on the 17th of August, was held at Sections Congress along with the GOLD Summit and a host of other GOLD programs in and around San Francisco. Our attendance was excellent, with a larger variety of participants than we usually see at GOLD Committee meetings. We had a lot more GOLD members attending who were not on the committee than usual, including several GOLD AG Chairs and Student Activities Committee Members. I believe this contributed to healthy discussions and robust results.

The purpose of this year's meeting was in threefold: education about GOLD operations, a revision of the GOLD Committee operating structure, and the determination of working groups for the remainder of this year. While I will not stretch this article into a summary of GOLD operations, I will address the latter points.

The GOLD Committee structure has been rather flat, with a Chair and Past Chair along with 16 other representatives. 10 representatives are regional coordinators from the 10 regions, 3 are representing the Membership and Geographic Activities (MGA) Board which includes the regional directors of IEEE, and 3 are representing the Technical Activities Board (TAB) which includes the technical societies and councils of IEEE. Other representatives that report to the GOLD Committee are the IEEE-USA representative, Educational Activities Board (EAB) representative, Student Activities Committee (SAC) representative, Publications Services and Products Board (PSPB) representative, our GOLDRush Editor-In-Chief, our GOLD Webinar team leader, a number of technical society and council GOLD representatives, and any other leaders of ad hoc subcommittees or working groups within GOLD.

A proposal has been made to help the GOLD Committee address this large number of people and an equally large number of programs by creating Vice Chair positions in charge of various areas. These positions include: Regional Activities, Technical Activities, Education and Training, Communications, Membership Development, and Awards and Recognition. The GOLD Committee addressed each of these positions in detail at our meeting and we are actively working to present this in writing to our parent committee and the MGA board for approval. There are of course more details which I will be happy to address with anyone interested in them.

The last major objective of the GOLD meeting was to determine the working groups for the remainder of the year and going into next year. After much discussion and a group vote, we decided upon the following working groups:

- GOLDRush
- Webinars
- Industry Relations
- Communications
- Continuing Education
- Collaborations with TAB/EAB
- Fun and Fellowships

Each of these working groups will operate within the GOLD Committee and is staffed by interested volunteers. We welcome GOLD members who are interested to sign up for a given working group as a way to influence GOLD and help achieve a shared vision. The GOLDRush working group, for example, is a way to get involved with GOLDRush and make it into what you want it to be. The Industry Relations working group will be addressing issues with bringing better industry involvement. The Communications working group will be focusing on how we get our message to members, including things like awards notices and other things that can be beneficial to members. The Continuing Education working group is focused on a topic that is important to many GOLD members, helping to use what IEEE has to offer and create what IEEE does not already have. The Collaborations working group will be helping to engage the technical societies and council to better serve GOLD members as well as other parts of IEEE. The Fun working group, despite its potentially silly appearance, is seriously dedicated to making the IEEE experience better for all GOLD members. ∎

2011 GOLD Summit
Stuart Bottom

The GOLD Summit is a tri-annual gathering of IEEE GOLD volunteers from around the world to engage, inspire and lead volunteers to better serve IEEE GOLD members. The 2011 GOLD Summit was held in San Francisco, California, USA.

Talk to anyone who attended the 2011 Sections Congress in San Francisco, and they will tell you it made quite an impression. Talk to someone who attended the GOLD Summit – held just before the Sections Congress – and they will tell you it was unforgettable. This was the first-ever meeting of a large, international group of GOLD delegates; for those fortunate enough to attend, it was a unique opportunity to obtain a

challenging young IEEE members apply their skills to solve the world's problems with technology. The evening concluded with a presentation of Member and Geographic Activities (MGA) Committee awards to various GOLD members.

On the following day, delegates began with breakfast and watched a presentation on the IEEE Student Transition and Elevation Partnership

MGA GOLD Chair Will Sommerville leading a discussion

truly global perspective of the issues IEEE faces today.

The Summit began with an excellent dinner, followed by a successful ice-breaker which resulted in delegates running around the room to meet each other. The evening's keynote speaker was Kristin Peterson of Inveno (http://www.inveneo.org/), a company that specializes in providing Internet connections to remote communities and disaster-stricken areas. In an inspirational speech, she discussed her experiences assisting with network deployment in Haiti after the 2010 earthquake and the challenges her team faced. She ended with a call to action,

(STEP) program, which helps students transition into the professional world through IEEE. Immediately after, the group split into teams to brainstorm tips for holding successful "STEP events," which are organized by local GOLD members to introduce students to the program. This was followed by a panel discussion on how to "Take GOLD Public," where members explored ways to increase collaboration between GOLD and other organizations. To illustrate an example of an event borne out of this type of collaboration on an international scale, Salima Kaissi gave a presentation on IEEE Day. Next, delegates saw a presentation on

the IEEE Humanitarian Initiatives Discussion, and finally, a session on the results of an IEEE Member Satisfaction survey with emphasis on actionable items for GOLD members. The formal GOLD Summit wrapped up around noon with a group photo – but the day was far from over.

For some delegates, that evening was the highlight of the GOLD Summit. Across the bay in Berkeley, a team of IEEE student and GOLD members organized the two-part "Engineers of Tomorrow" event. The first half was a STEP event, targeting local students and giving them the opportunity to hear a variety of perspectives on the challenges faced by professionals in today's job market. The distinguished speaker for the evening was Virgil Rose, former Senior Vice President of Nexant and PG&E and current board chairman of Beacon Power Corporation; he shared his experiences and a vision for what the Engineer of Tomorrow will be. Afterwards, the audience witnessed a panel discussion featuring GOLD members addressing a variety of career topics.

During the second half of the "Engineers of Tomorrow" event, GOLD members organized a networking mixer and Multicultural Evening Party, featuring an international collection of memorabilia and food. Students mingled with GOLD members from around the world, shared stories, traded career tips, and discussed their latest and greatest engineering projects. The event was enjoyed by all and a fitting conclusion to the GOLD Summit.

You can view the highlights on IEEE TV at https://ieeetv.ieee.org/player/html/viewer#gold-multicultural-event. ∎

For more information

For more information, please contact gold@ieee.org.

IEEE.tv has footage of the GOLD Summit and Multicultural Event.

Check out GOLD Regional Posters on Facebook

IEEE GOLD Member Profile
Featuring up-and-coming IEEE GOLD members from around the world

Eva Lang
Alma mater **Universität Passau** Current location **Germany**
Current career and job: **Researcher at Institute for Software Systems in Applications of Computer Science (FORWISS), Passau, Germany (www.forwiss.de)**

Career description

I received my Diploma degree (European equivalent to the Master degree, back when it didn't exist) in Computer Science and Mathematics in 2007 and started working shortly afterwards. During my studies, my main interests were set on image processing, robotics and real time systems. I taught robots to play soccer and robot dogs to follow moving objects.

I currently work for the Institute for Software Systems in Applications of Computer Science (FORWISS) as well as with the Faculty of Computer Science and Mathematics - both at the Universität Passau. I am also completing my PhD in the field of signal processing, feature extraction and pattern recognition.

My research work is part of an European Union wide project dealing with advanced driving and safety systems for vehicles. Together with my colleagues, I develop software for an integrated platform on intelligent vehicles, explore feature extraction and data fusion methods in order to interpret information from the surroundings of the vehicle and trigger further applications such as braking assistance, lane departure warning applications and other continuous driving and safety warning assistants.

During the second half of the day, I work for the Faculty of Computer Science and Mathematics, where I coordinate a network of female computer scientists and engineers. This job involves reaching out to pre-university students where middle and high school students attend various hands-on workshops. I also organize career related events for the students at my school. These include company visits where students gain first-hand experience with their future employers, or par-

ticipate in round table discussions with company representatives where women in the IT field share insights on their career development and ways to balance work and family life. As a member of the Faculty Board, I get to sit on the various search and administrative committees, working on bringing more female teachers to the University.

What I love about my job is the diversity of tasks that I deal with every day. Be it project related planning meetings, where I dig deeply into papers and literature to get a grasp on cutting edge technology and algorithms to spending full days hacking, giving classes or organizing workshops - no day is the same!

What are your personal interests (i.e. hobbies)?

I have been active in various volunteer positions inside and outside of IEEE, ranging from Pre-University and Student Activities to working with Young Professionals. I have been fortunate to join and lead great teams from all over the world, building up a network of professional contacts and friends, developing programs and projects for IEEE groups and improving the so-often cited soft skills (non-technical skills).

I love traveling and seeing different places in the world, meeting great people from all over, exploring new things, traditions and cultures and sharing happy moments with friends and family.

Sports gives a good relief after long days in the office or on the road - and yes, it could be more! If time allows, I enjoy running the streets of

Eva Lang

my city or working out at the karate club in my hometown.

Do you have any advice for Young Professionals?

Whatever you do, work hard but remain authentic to your co-workers and especially to yourself and your beloved ones! Focus on what you want to achieve but also take the time to think out of the box.

Talk to the people around you, as they are all experts in their fields. Think globally, remain open-minded and take the opportunities that are out there waiting for you! Stay involved and connected to your network and friends.

And don't forget to check out the many possibilities that IEEE offers to let you grow in your own expertise and skills. ∎

Do you know someone we should profile for GOLDRush?

Get in contact with us at goldrush@ieee.org. Include their contact details and why we should feature them.

IEEE **GOLD**Rush

The 5th Career Development Workshop for Young Students and Professionals

Alex Fung - IEEE Tokyo GOLD Affinity Group Chair

The 5th Career Development Workshop for Young Students and Professionals was held in Keio University, Yokohama, Japan on June 25, 2011. The event was jointly organised by the IEEE Japan Council Women in Engineering (WIE), and student branches of Tokyo University of Science, Tokyo Denki University, Keio University and Yokohama National University.

Young professionals from various companies were invited to facilitate this event. Each facilitator was assigned a topic to hold a discussion session with undergraduate and postgraduate students. The participants were able to choose which discussion topic they wanted to participate in. This workshop was open to IEEE members and non-members. Non-IEEE members had the opportunity to learn more about IEEE.

At this workshop, topics included:

A. Working abroad

B. What jobs are enjoyable or how they can be enjoyed.

C. Should you change jobs or not? The best timing and company to choose for job change

D. What we can do for the company vs company expectations

E. Necessary skills for system engineers

F. What is required to be successful abroad

G. The difference between the research activities of a student and a company researcher

I have been attending these career workshops since the first time they were held. This was the first time that I acted as a facilitator (group A). As a facilitator, I was very excited that my career and experience working overseas were able to help the participants in my group. Although I had prepared some items to discuss, I found that once I started the direction of discussion, the participants were very self motivated to explore different topics within the main topic. While I hope the participants found the discussion useful for their career path, I also gained useful insight into the opinions and perceptions of the participants which would be helpful in my life.

In the other groups, a number of interesting topics were discussed. Group B talked about enjoyment in a job. I believe that it is very important to enjoy a job because most people spend most of their lifetime working in a job.

In group C job changing was discussed, which is a relatively rare topic in Japanese society. Many of the job seekers in Japan are still considering life-long careers, in which they plan to work for the same company for the coming forty years. However this has started to change and job changing is becoming more common.

On the other hand, some participants wanted to know the actual skillset required in a specific career. In group E the necessary skills required for system engineers were discussed. The facilitator first introduced and clarified the profile of a system engineer, and then went on to discuss

Career development workshop group discussion

the different skills that could be acquired other than specific technical knowledge.

It is clear that being a student is different from being an employee in a company. Group G discussed some major differences between the research activities of a student compared with a company researcher in areas such as lifestyles, required outputs, objectives etc.

A party was held immediately after the workshop - this allowed members to discuss with facilitators and participants in the other groups. For many participants, these conversations with people from different areas were so enjoyable, they wished for more time. We received positive comments and hope the next workshop will become even better!

For more detailed report on this event, please visit http://www.ieee-jp.org/tokyogold/index.html. ∎

Group brainstorming session notes

Helping Students Transition to Young Professionals with IEEE

STEP stands for Student Transition and Elevation Partnership. It is an initiative that was developed to provide 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. The IEEE STEP Program objectives are:

- Identify a local IEEE entity beyond the student branch for members to contact
- Plan a joint Section and GOLD event to introduce local IEEE resources
- Illustrate IEEE member benefits appropriate for young professional members
- Identify recent IEEE Student members who have graduated with an undergraduate or graduate degree; help retain members by capturing any change of ad-

dress, email or other contact information

Funding is available for STEP activities including a graduation reception for groups holding an event with a minimum of 10 recent graduates. Basic funding will be provided up to the amount of $500 and additional funding may be available if the number of additional recent graduates attending exceeds 25.

IEEE will provide each STEP sponsor with a package of supplies to help make the workshop a success. The resources included in the STEP Kit will assist in organizing and executing a Student Transition Event, as well as a successful IEEE membership campaign to help retain student members as young professional members and keeping them actively engaged with IEEE. For more information please visit http://www.ieee.org/membership_services/membership/gold/step.html. ∎

Career Development and Entrepreneurship for Young Engineers
Keoikantse Marungwana - South Africa GOLD Affinity Group

The IEEE GOLD (Graduates of the Last Decade) Affinity Group, Northern Region, of the IEEE South Africa Section proudly hosted a Student Transition and Elevation Partnership (STEP) event on 14th April 2011, in collaboration with the Wits IEEE Student Branch (University of the Witwatersrand). The event brought together graduating Engineering students and Engineering professionals from different specializations for networking opportunities and knowledge sharing on career development strategies.

The event hosted two highly experienced speakers who presented the two career progression routes available to young engineers after graduation. Lizanne Conradie of the University of Pretoria's Career Office discussed career planning and successful job search strategies for the traditional career progression path of employment after graduation. Dr Kerrin Myres, Director of the Centre for Entrepreneurship at the Wits Business School focused on the entrepreneurship route of starting your own business.

Important skills for career development such as personal branding, networking, effective communication, CVs and interview skills were highlighted. The event had two networking and refreshments sessions, at the start and end of the programme, providing ample opportunity for some of these skills to be practiced. The event enjoyed support from the School of Electrical and Information Engineering, which proudly sponsored the refreshments. The evening ended on a high note with a raffle where IEEE student member, Justin Wernick, won an Amazon Kindle with WiFi + 3G! ∎

ExComs of GOLD, and IEEE Student Branches of University of the Witwatersrand and University of Pretoria

Lizanne Conradie, Marlize Naude – Wits IEEE SB Chair, Dr Kerrin Myres, and Keoikantse Marungwana – IEEE GOLD AG Chair

IEEE GOLD Community News
From around the world

IEEE New Zealand North GOLD Dinner with Special Guest Speaker

The IEEE New Zealand North Section GOLD Affinity Group started the year by organising a dinner with a guest speaker. The section-funded event took place right in the heart of Auckland at Little India restaurant. The delicious food consisted of a variety of meat and vegetarian dishes; this paired with fresh orange juice made for an enjoyable meal by all attendees.

Members had an excellent chance to talk over a variety of topics in an informal manner including - aircraft design, computer databases and even the recent cricket matches. Aside from the food , he highlight of the event was our guest speaker, Thomas Hills, who works for a local design consulting company. The company designs award winning interiors for aircraft ranging from private jets to the Boeing 777. Thomas' presentation was an inspiring journey demonstrating where our careers can take us even after just a few years in the right industry. On a more technical note, his presentation included a first hand view of the application of Finite Element Analysis (FEA) modeling for simulating aircraft interior stresses, combined with cut-away sections taken from actual manufactured parts.

The IEEE NZ North GOLD Affinity Group was pleased to be part of the Region 10 Student/GOLD/WIE congress that took place from July 7-10th 2011 at the University of Auckland. This conjoint congress is the first of its kind and promises to be an excellent showcase of emerging technol-

Members at the New Zealand North Dinner

ogies in New Zealand (www.r10sc.auckland.ac.nz). This event coupled with the 2011 GOLD program consisting of professional development workshops, site visits and social sporting events will make for an excellent year to look forward to. For more information visit our new website at www.ieeenzn-gold.org. The committee has also created a Facebook page for the New Zealand North GOLD Affinity Group. Please feel free to post your feedback/comments on our website and 'Like' us on Facebook. ■

IEEE GOLD Lebanon STEP Event
Michel Khayat, Vice-Chair IEEE GOLD Lebanon

The IEEE GOLD Lebanon hosted a STEP event on 25th July 2011 at the American University of Science and Technology (AUST) in Beirut, with help from the AUST Student Branch. This event was a special occasion for graduating IEEE members from major engineering universities in Lebanon. It provided recognition for their achievements and prepared them for the next stage of their careers with a number of informative seminars.

The STEP event is 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.

This year, we had speakers from industry to share their knowledge and experiences through their presentations. IEEE Lebanon Section and IEEE GOLD also provided an overview of the current and planned activities. Food and beverages were provided and a General Knowledge competition was held with great prizes awarded the winners.

The speakers spoke on the following topics:
- Time & Stress Management by Mr. Afif Tabsh

- IEEE Region 8 Student Activities and IEEE Lebanon Section by Dr. Elias Nassar,
- IEEE GOLD, Membership, Benefits and GOLD in Lebanon by Mr. Michel Khayat,
- Linux and Freedom by Mr. Paul-Marc Bougharios, and
- Personal Growth by Dr. Samir Zehil. ■

IEEE GOLD members and committee members at the STEP event

IEEE GOLDRush

IEEE GOLD Community News
From around the world

IEEE Seattle GOLD Grad Night
Curtis Lu - Seattle GOLD Affinity Group

The IEEE GOLD Seattle Affinity Group, with the support of the IEEE Seattle Section, recently hosted a Grad Night for recent and soon-to-be college graduates. This STEP event was held on May 26th at Hale's Ales Brewery in Seattle.

This inaugural event was a great success. It was organised to serve the dual purpose of a recognition event as well as a mentoring opportunity. We had about 20 people attend, which included 6 mentors. We charged a minimal fee and provided food, drinks, and the banquet room.

In addition to meeting mentors and winning prizes, the students had the opportunity to learn about the benefits of continuing IEEE membership, which I presented, and the importance of mentorship, presented by Brett Hanson (IEEE member).

Given the positive feedback and the good time that was had by all, we plan to make this an annual event. ■

IEEE GOLD Site Visit to Te Uku Windfarm
Noel Gomes - New Zealand North GOLD Affinity Group Chairperson

On 25th June 2011, the IEEE New Zealand North GOLD collaborated with 'Engenerate' – the young engineers division of the Institute of Professional Engineers of New Zealand (IPENZ) to organise a visit to Te Uku wind farm. The combined effort paid off with a record 41 attendees, consisting of GOLD members, IPENZ young professionals and student engineers. A range of disciplines including artificial intelligence, information systems and even marine science were represented.

The aim of this event was to provide young professionals with an insight into the day to day operations of modern world class wind farm. A bus took us from Auckland to the small town of Raglan where the wind farm was located.

After a safety briefing, we were introduced to the site with information on its capacity, importance, key facts and millstones, design features, construction challenges and how the project has benefitted the local community.

Even with average wind speeds, we still felt the constant rumble of our wind jackets. After the two-hour tour we enjoyed a short walk to Bridal Veil to view the spectacular 55 meter waterfall flowing into the Pakoka River. The waterfall provided a great analogy to the size of the wind turbine blades, which had a 49m reach shaft to tip.

Some of the highlights of the wind farm include:

- Recently commissioned $250m world class windfarm in the Waikato region.
- New Zealand's newest and northernmost windfarm with a generating capacity of 64.4MW, enough to supply around 30,000 homes and consisting of 28 Siemens turbines 2.5MW in size, 80 metres long, the tallest in New Zealand.
- The first to be a partnership between an electricity generator, retailer and a lines company in New Zealand.
- A 600-tonne capacity, narrow-wheeled crane was used to install the turbines. This is the largest wheeled crane ever used in New Zealand.

On the whole, the event was a great success with all attendees benefiting from the opportunity to interact with our tour host and other young engineers in the region. The visit provided a good opportunity to get up and close to the turbines and hear the silent swish from the giant blades. It also gave the attendees a few practical ideas on the construction and design features of a modern wind farm. The attendees were satisfied with the information provided and everyone learnt some new information including how strict health and safety was maintained during construction, how the community was involved and how the impact to nearly wildlife is monitored.

This collaboration of IEEE GOLD and IPENZ Engenerate was the second one for this year; the event has further strengthened our relationship and we look forward to future joint events. The committee would like to thank Meridian Energy for the opportunity to visit the wind farm and all the attendees for their participation and time. More photos on the event can be found on our Facebook page, IEEE GOLD New Zealand North. ■

IEEE Teacher in Service Program Workshop India
Prasanna Venkatesan, Hyderabad, India

The IEEE GOLD Affinity Groups of Hyderabad and Bangalore section along with the IEEE Educational Activities Board (EAB) hosted the IEEE Teacher in Service Program (TISP) Workshop on 7th and 8th May, 2011 at Hotel Taj Krishna, Hyderabad. The TISP workshop was aimed at training IEEE Volunteers who will work with School Teachers to deliver In Service Presentations based on the material available from www.tryengineering.org.

The workshop was a huge success with more than 100 IEEE volunteers from the 5 IEEE Sections across India (IEEE Hyderabad, Bangalore, Kerala, Chennai and Mumbai Sections) actively participating in 8 sessions spread over two days. Out of over 300 applicants, about 120 were shortlisted with the help of senior IEEE members, and invited by the organizing committee to attend this event.

The workshop saw active participation from members who have championed several engineering outreach efforts for school students. They shared their experiences and guided the members on the importance of such efforts, and the means and ways to effectively reach out to school teachers and other related ongoing efforts in India.

Dr. Elizabeth Bird, Chair for IEEE Pre-University Education Committee of the EAB started the proceedings on 7th May, 2011 with a keynote address on the Importance of Pre-University Education activities and gave insight into similar efforts by the IEEE around the world. She gave an introduction to the Engineering Portals effort from the IEEE, namely the Tryengineering.org, Trynano.org, Trycomputing.org, etc. resources and talked about how much change we are able to influence through the efforts of all our volunteers. She also spoke about what constitutes an In Service Presentation and the kind of support IEEE offers to its volunteers to run such workshops for school teachers. Prasanna Venkatesan (GOLD Liaison to EAB) spoke about the importance of such activities in India and IEEE's plan and vision in India for such activities.

Jennifer Ng, a TISP Champion from Canada, joined us to host a couple of hands-on training sessions for volunteers. She also shared her experience of hosting several workshops for teachers in the USA and Canada. Volunteers followed practical lessons from the Tryengineering.org website and created scientific models for demonstration. This helped all the volunteers realize the importance of practical learning for students and also prepared them to deliver similar training for teachers and students from various schools in South India.

Mr. M.G.P.L. Narayana, Chair, IEEE Hyderabad Section and Vice President, TCS and Mr. Ramakrishna Kappagantu AGM, Power Grid (Past Chair, IEEE Bangalore Section) delivered the welcome address on the morning of 8th May.

Following their address, Chief Guest Dr. R. Satyanarayana (Commissioner and Director of School Education, AP) delivered a keynote address on "Challenges and opportunities in school education." He urged engineers to take leadership in such activities and stressed that the engineering community should become more vocal and help shape public policy concerning pre-university education. He also invited the volunteers to visit government schools in Andhra Pradesh and host training workshops for teachers.

A highlight of the Workshop was a panel discussion where the volunteers had an opportunity to interact with a panel of well-accomplished members representing various facets of pre-university education in the country. The panel consisted of Prof. N. Lakshmana Rao, Retired Head of Chemistry Department from St. Aloysius College Bangalore; Mrs. Vijayalakshmi Ramesh, Principal Bharatiya Vidya Bhavan Hyderabad; Prof. C.D. Patil, Secretary, Karnataka Rajya Vignana Parishad, Bangalore and Mrs. Jyoti Ramachandran, Manager, Kotak Education Trust. Other notable invited members like Prof. Patil, Founder Gyan Ganga Trust, Prof. V.P. Kodali, Past IEEE R10 Director joined the Panel members and interacted with the volunteers.

The panel discussion was followed by a planning session for volunteers. Volunteers separated in to different groups based on their geographic location and further chalked out a plan to drive TISP Activities in their state.

There has been good progress since the workshop. Volunteer groups from different IEEE Sections have planned to host workshops for school teachers in the near future. The volunteer team will keep the IEEE Members posted about developments and volunteering opportunities through IEEE news Publications such as this one. We also plan to release a website for the TISP Activities in India where there will be up to date information on various activities. ∎

EPICs projects in Argentina GOLD

Augusto Herrera, Argentina GOLD Affinity Group

Engineering Projects in Community Service (EPICS) is a program founded at Purdue University (Indiana, USA) in 1995 by Edward Coyle and Leah Jamieson, with the objective of solving common humanitarian problems using the skills of undergraduate students through the curriculum to provide services to local non-profit organizations.

In IEEE, the EPICS program was promoted by Leah Jamieson (2007 IEEE President) as a program that unites efforts between university and high school students to work on engineering-related projects for local humanitarian organizations.

One of the desired outcomes of EPICS in IEEE is to establish a relationship between the student branches or GOLD Affinity Groups in participating sections, a local high school (or schools), and charitable, communal or humanitarian organizations in each venue. The relationship will focus on development – by university and high school student teams – of devices and systems for the benefit of the target audiences of the communal organizations.

EPICS Project in Region 9

In Region 9 we have developed three EPICS projects. The first two projects, "Electrical Energy in Rural Elementary Schools in Uruguay" and "E-Pro Scientia Language Translation in Uruguay" have been carried out by the student branches from the Uruguay Section. The third EPICS project, "Sustainable Development for Renewable Energy" has been carried out by the Polytechnic University of Puerto Rico (Puerto Rico & Caribbean Section).

EPICS in Argentina Section

Recently, three projects presented by GOLD-Argentina and IEEE Córdoba Subsection have been approved to be developed.

1. Waste Electrical and Electronic Equipment (WEEE)

The life of electronic devices, particularly computer equipment, is relatively short and decreases each year as a result of changes in technology, resulting in an increase in obsolete materials otherwise known as e-scrap, e-waste or Waste Electrical and Electronic Equipment (WEEE). The objective of this project is to take this waste for recycling through a system that is coordinated by Subsection IEEE Cordoba and GOLD-Argentina, with the collaboration of the National University of Cordoba.

The first stage of the project is involves building a laboratory to carry out the program with the goal of recycling more than 100 computers in the first year, with ex-

pectations to reach more than 10 schools or institutions that are in need of this equipment. The main objective is to provide access to information and communication technologies to educational institutions, by refurbishing computers donated by private companies and government agencies and to promote meaningful use and development in education for the purpose of contributing to the reduction of the digital divide.

2. IP telephony system implementation between College and University

This project aims to implement an IP telephony system between the Faculty of Exact, Physical and Natural Sciences (Center and Campus) and National College of Montserrat (CNM). The implementation will be carried out by installing three servers that will fulfil the role of IP PBX (implemented by software) distributed in three locations.

The final objective is to have a functional system to replace the same functionality as a conventional PBX (interactive voice response, virtual attendant, voicemail, call forwarding, others) as well as provide urban and international calls at a low cost.

Students will have the opportunity to learn everything about the installation, configuration, and implementation of a VoIP system.

3. Design, development and construction of modular educational kits for teaching electronics in pre-university schools

This project consists of the design, development and construction of modular kits for use in teaching the basics of electronics in high schools with technical guidance from Córdoba, Argentina.

The implementation of our proposal makes possible a greater and better learning by students, who as a result can access advanced technology at a low price, complete with manuals, and updated and adapted to the new news study plans of the colleges of Córdoba. The teachers will be able to prepare their lessons faster and facilitate the development and improvement of future lessons. This will save time by reducing the number of translations and adaptations needed to create local study plans.

These projects will have a lead time ranging from six months to a year. ∎

1. http://www.ieee.org/education_careers/education/preuniversity/epics_high.html
2. http://www.ieee.org/education_careers/education/preuniversity/uruguay_elementary_energy.html
3. http://www.ieee.org/education_careers/education/preuniversity/uruguay_escientia.html
4. http://www.ieee.org/education_careers/education/pupr_renewable_energy.html

IEEE GOLDRush

Egyptian Engineering Day

Egyptian Engineering Day (EED) is an expo which showcases engineering graduation projects with real life applications. It was founded in 2002 at the annual Egyptian Student Branches Meeting.

Today EED has developed into an event that receives significant publicity and support from the Egyptian government, academic parties, industry and media with both local and regional recognition. It is considered to be the annual nexus for engineers in Egypt and an opportunity for all engineering professionals to meet new associates in the field, share ideas, collaborate on projects and learn something new.

Through the years EED volunteers have been striving to fill the missing link between university study and industrial applications represented by private and public sectors. Every year they carefully choose a slogan to serve that year's vision, such as "Industry University Link" in 2002 and "Think Global" in 2010.

EED continues to develop and highlight new ideas, support more exhibitors and attract more volunteers. As the organising committee gains more experience, a focus on increasing professionalism has provided more opportunities and contributed greatly to its success. In 2011 the headline for the event was "10 Years Serving Egypt", celebrating the past decade of success, dreams, hard work in attracting more exhibitors and engaging and enriching the engineering community.

The 10th EED has also been an opportunity to set the foundations for brand new era in our country. In this very special year, we face immense challenges in helping fresh graduates draw their vision for a better Egypt, participate in the country's development in all the technical, economical and social fields, encourage Egyptian & Arab youth to be proactive and take the responsibility of and promote the process of creating, developing, integrating, sharing and applying knowledge about technologies & sciences for the benefit of humanity.

EED2011 aims to achieve the following goals:

- Encouraging Egyptian youth to be proactive and giving them the chance to participate in development of our society.
- Networking and uniting efforts of all international and local people, institutes and organizations that share our vision and share the same areas of interest—so that everyone wins.
- Spreading special awareness programs in our activities that demonstrate to all the importance of synergy, contribution and hard work in the country's development.
- Encouraging entrepreneurship among youth and implement practical roadmaps and training programs to help them develop their own businesses.
- Encouraging research & development, depending on the needs of industry and society.

Attendees visit the exciting Employment Fair at Egyptian Engineering Day

- Participating in creating technology centers inside universities.
- Developing programs and implementing successful models for cooperation between industry and universities that result in win-win situations.
- Developing training programs for graduates and undergraduates to learn important soft skills (such as communication skills, team work, planning and project management).
- Creating and implementing special programs for schools that encourage students to contribute to the country's development and to help discover bright and talented students.

The program for EED 2011 includes many exciting initiatives including:

- EED Town Center—A common area for projects exhibition
- Employment Fair; a common area for companies to collect CVs and meet fresh graduate students
- EED Workshop; technical seminars and industry-related talks
- EED Forum; formal interactive discussion panel and special-interest group meetings
- EED Reboot; a meeting for participants the day before the main event, including setup of projects and a short soft-skills workshop for project exhibitors
- EED competition; competition between the participating projects to select the best project in all engineering fields
- EED Museum; area to display EED's achievements over the past 10 years in a very attractive and interactive way
- EED Alumni; success stories that have taken place during the past decade.

EED—celebrating 10 Years Serving Egypt! ∎

MGA Hall of Fame Award Finnish Story
Chibuzor Eneh, GOLD Finland

As individuals they're mere faces that people pass by daily along the University hallways, mere manikins possessing the outer characteristics of engineers, looking smart, focused, and playing around with gadgets. But unlike the typical engineers, these individuals were linked by something more, something going beyond their mere appearance.

To say that they were united by a cause, would be like saying that a lion is a big cat. No, they were in it for the thrill, the adventure - the excitement of going where others have just dreamed. Like the pioneers on an expedition to conquer Mt. Everest, this well-knit team of flourishing professionals wanted to make a difference, realizing that it can be achieved with cooperation and a good team effort. It is no secret what has happened in Oulu.

This team has contributed immensely to the visibility of Finland IEEE and to Finland's IEEE growing renown across the world. Our members have progressed from local to wider regional responsibilities (Rafal Sliz was nominated to the R8 GOLD Committee), in addition to publishing multiple articles in different IEEE media (GOLDRush, R8 Newsletter etc.). Despite the small size of the group we were able to successfully plan and arrange multiple diverse events: In the Spring of 2010 in May two professors gave lectures on cognitive networks and spectrum sharing at the IEEE GOLD Professional Telecommunication Lectures.

During the Fall of 2010 IEEE GOLD set a goal to gain more visibility which was achieved by attending Vulcanalia, a day for guilds and associations at the University of Oulu. The team reserved a central location and attracted the attention of people with candy, various promotional pamphlets about IEEE and running promotional videos on a 52'' wide screen. Furthermore ,we witnessed the slight re-engineering of an age-old saying "curiosity killed the cat" to "curiosity destroyed the helicopter" during the IEEE day as the attention of the University of Oulu was mainly directed to us for 4 hours of that day.

We organized a STEP event in November, which was gear towards developing professional presenting skills especially with regard to the different aspects of delivering a presentation and gaining more experience by practicing. Many representatives of the industry, researchers and students were present. We also plan to make the city of Oulu an IEEE city, by getting involved in arranging events on a municipal scale, like our following event, which will be covered by the local newspapers and possibly news (for more please view www.ieeegoldfinland.org). Our events have certainly been successful and have aroused a lot of interest even in the IEEE community both regionally and globally by making a few of the headlines.

It doesn't stop here! IEEE GOLD Finland has extended its sphere of influence to Tampere by establishing a new section there, which is alive and well. IEEE has provided us with an instrument to implicate change, arouse awareness and connect with the needs of the local professional environment. We are very glad about our success, and believe in sharing, because as the old adage goes it is caring. We hope that many teams around the globe - especially in region 8 can benefit from our experience.

We want to remind everyone that innovation does not just happen, it requires the minds that are free from discussing others, the minds that are not limited to only discuss events, and the minds that dare to dream. We encourage all the teams to be bold and build castles in the air, and not to forget to put proper foundations under them; we innovate to create and not to eliminate. In the future we plan to increase our numbers. We will achieve this by hosting events that are very relevant in the local area. We will take measures to facilitate the membership application process as well as participation and we will further increase cooperation with the local industry.

All in all, this group though fairly small has fulfilled the IEEE Spartan dream of beating the odds and making a significant impact despite their size. Their award is sure to encourage many other groups that have enthusiastic people who are willing to surf the waves of innovation and change no matter how rough they may seem. ∎
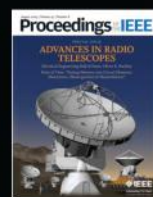
R10 GOLD Participates in Joint Student/GOLD/WIE Congress
Timothy Wong, R10 GOLD Co-ordinator

Region 10 IEEE Graduates Of the Last Decade participated in the joint Student/GOLD/Women In Engineering (WIE) congress held in the region. The event took place over 4 days at The University of Auckland and was a great opportunity for GOLD, Student and WIE members and volunteers to develop their leadership skills and network with each other. The GOLD initiatives and events that took place at this congress are reported below.

Geographic GOLD Forum
In this session, GOLD groups were divided into their respective Region 10 sub-groups. The three sub-groups include South Asia, East/North Asia, and Australia/New Zealand. These are the same sub-groups which operate under the Region 10 GOLD Clustering Initiative. The rationale behind this grouping is the belief that these groups operate under similar circumstances based on their geographical location, socio-political and economic environments.

A number of relevant discussion questions were prepared by Noel Gomes for this 1 hour session. The discussion questions were grouped into the following themes:

- Membership recruitment and retention
- Managing a GOLD Affinity Group
- Suggestions for GOLD events for member and membership development
- Ideas for collaboration between Student Branches/ other professional organisations & GOLD

After the discussion, each group appointed a leader to report their findings. It was evident from the discussions that there is much room for improvement and many opportunities for collaboration within GOLD operations in Region 10. The results of this discussion have provided input for planning in Region 10 GOLD and GOLD Clustering Coordinators to take the required short-term action to address the issues that arose in the session.

Engaging GOLD with Industry
The session on 'Engaging GOLD with Industry' was facilitated by the New Zealand North Section Chair, Peter Over, and lasted for 30 minutes.

A number of discussion points were prepared and brainstormed to stimulate thoughts and discuss experiences on positive outcomes from GOLD events with industry participation. Attendees were provided with some useful tips on how to engage more with industry to achieve maximum benefits for both parties.

GOLD STEP Event
IEEE STEP is the Student Transition and Elevation Partnership initiative that is run at the MGA GOLD level. The aim of STEP is to help students transition from being a Student Member into professional life after graduating from their first professional degree. Students typically end up working in industry or undergoing further postgraduate study after graduation. The objectives of the STEP program as outlined on the IEEE STEP website (http://www.ieee.org/membership_services/membership/gold/step.html) are to:

- Identify a local IEEE entity beyond the student branch for members to contact.
- Plan a joint Section and GOLD event to introduce local IEEE resources.
- Illustrate IEEE member benefits appropriate for young professional members.
- Identify recent IEEE Student members who have graduated with an undergraduate or graduate degree; help retaining members by capturing any change of address, email or other contact information.

A STEP event titled "Engineering Your Career with GOLD" was held during one of the sessions of the Region 10 joint congress. Local graduating student members were invited to take part and meet the GOLD volunteers and committee in Auckland. The event at the Congress also provided a live demonstration of how a STEP event could be run to other GOLD and Student volunteers from around Region 10.

The STEP event began with a brief presentation by the New Zealand North GOLD Chair, Noel Gomes, to welcome

R10 GOLD Participates in First Joint Student/GOLD/WIE Congress

the audience and outline the purpose of the event by the New Zealand North GOLD Chair, Noel Gomes. This was then followed by an informal question and answer session with a panel of global GOLD volunteers that have enhanced their career and professional development through their significant involvement with the IEEE and GOLD.

GOLD session on career development

The best was left for last with the GOLD session on career and professional development. This session consisted of speakers from industry who shared their professional and career experiences with a slant towards young professionals. The presentations included:

- Leadership opportunities for young engineers - Shreejan Pandey
- Career transitions and decisions - Richard Gibbons
- Strategic networking in the 21st century - Colin Kennedy

The presenters were all industry professionals who were at various stages of their career. They provided a unique perspective which was shaped by their own individual life and professional experiences. The presentations were well received, and the audience was given an the opportunity to meet and have a one-on-one chat with the presenters following the session.

Conclusion

A quick survey of the attendees who attended the congress provided very encouraging positive feedback on the sessions and the overall consensus was that it would be a good idea to hold another joint Student, GOLD and WIE

congress in the future. All participants benefited from the opportunity to network and form new friendships to propel IEEE GOLD into a bright future. This joint congress also had the advantage of helping student, GOLD and WIE organizational units within the IEEE understand the relevance of each other's presence and realize the benefits of working with each other.

I would like to thank the New Zealand North Chairperson, Noel Gomes for his enthusiasm and help with organising the GOLD events during this congress. A big thank you must also go to the congress organisers who worked tirelessly to ensure that this event was possible and a big success. Last, but not least, this event would not have been a success without the help of the support of IEEE Region 10, the sponsors and the conference attendees. ■

IEEE GOLD Book
Rafal Sliz - Region 8 GOLD Committee

An amazing initiative of the R8 GOLD committee – the R8 GOLD Book - has been completed with great success and presented during IEEE Sections Congress 2011 in San Francisco. The GOLD Book is the result of hard work by the R8 GOLD Committee under the editorial supervision of Nele Reynders. The GOLD Book is a compilation and presentation of all the activities of Region 8 GOLD Affinity Groups (AGs) in the years 2008-2010.

The scope of the book is not only to present the activities of the AGs, but also to demonstrate their successes and failures so others can learn from their experiences. Special focus was given to GOLD oriented programs, such as the STEP program and the Humanitarian Workshops. Detailed information about organized events, successful stories, unsuccessful stories, significant challenges and future plans make the GOLD Book a perfect base for evaluation of GOLD activities in Region 8.

With the content of the current book, the editors expect that it will serve future volunteers and committees so that they can learn and take advantage of these experiences in order to enrich and enlarge their activities in local AGs. Additionally, it is expected that some of these details will help to shed light on what members can expect IEEE to deliver to them, and ultimately steer IEEE strategically worldwide.
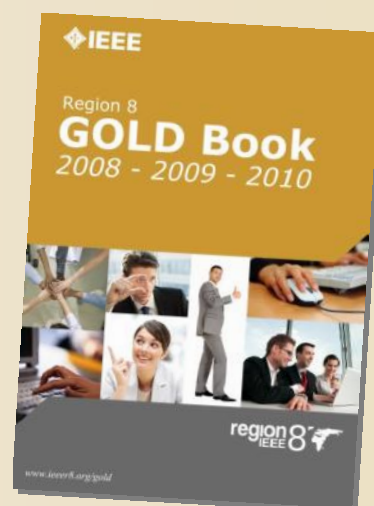
IEEE GOLD Affinity Group Profile
Featuring GOLD Affinity Groups from around the world

Santa Clara Valley GOLD Affinity Group
Chairperson **Sachin Desai**

The areas which is home to Google, Fairchild Semiconductor and Sand Hill Road, is also home for the IEEE Santa Clara Valley Graduates Of the Last Decade section (SCV GOLD). Part of the largest IEEE region in the United States, SCV GOLD has served it community with technical sessions, networking events, and plain ol' fun for nearly a decade. In 2011, Sachin Desai stepped in as Chair, along with an enthusiastic group of officers and volunteers. Viraj Pandit as Vice Chair, Jared Petrie as Secretary and Anshul Bansal, Treasurer, form the officers panel. However, without the help of Daniel Felnhofer as Communications Director, Trevor Meyerowitz as Program Chair, Marie Weber as Membership Director, and Stephen McInerey, the numerous events held throughout the year would not have been possible. Also, we would like to give special thanks to Jonathan David, the region advisor. Throughout the years, he has provided guidance and ensured that GOLD never faltered in its mission.

The year started off with the "Volunteer Information Event," held at Qualcomm, where technology non-profits presented volunteer opportunities for IEEE members. The non-profit groups were happy to find a large number of highly trained engineers willing to donate their time for worthy causes.

On March 28th, a technical session was held at Santa Clara University (SCU), titled "Cloud Computing: A Multi-Discliplinary View From Technology, Business and Law." Students, professionals and GOLD members networked over food and wine, and discussed a hot, emerging technology field. SCU Dean of Engineering, Godfrey Mungal, kindly presented the opening remarks. Riaz Karamali, an attorney with Sheppard Mullin; Bernard Golden, CEO of Hyperstratus; Davi Ottenheimer of VMWare; and Steve Riley, Technical Leader of Riverbed, helped illustrate

(L to R) Daniel Felnhofer, Trever Meyerowitz, Jared Petrie, Sachin Desai, Marie Weber, Anshul Bansal and Stephen McInerey

the various ways Silicon Valley engages with the cloud business.

The most recent technical track took place on September 15th at Stanford University, with the title "Mountains of Data: A Hiker's Guide." This was a STEP event, with focus on current, and future trends in data storage. The panelists spoke about the explosion of data, with nearly an exabyte of information being stored each day! Tom Coughlin, President of Coughlin Associates, Mark Day, CTO of Riverbed and Gordon Brebner, Distinguished Engineer from Xilinx, helped the audience understand, how to store, access and process the data growth.

Santa Clara Valley GOLD isn't all about work—they also like to play. A Laser Tag event was organized in Mountain View, with 40 people showing up. After a friendly bout, everyone headed over to Sports Page to relax and enjoy some Californian weather. They also supported MakerFaire, an DIY arts, crafts and engineering event that draws thousands of people. SCV GOLD supported Lee Colby's IEEE booth, and helped ex-

hibit fuel cells. The children especially loved the exhibit. They got to play with toy cars, propelled with nothing more than water. For the remainder of 2011, plans for Go-Karting and Bowling are in the works. These events tend to be very popular with the local community, giving them a chance to relax and "unplug" from the busy world of Silicon Valley.

Today, and for the future, SCV GOLD continues its strong commitment to IEEE—particularly, students and recent graduate members. Reflecting the rich diversity of Silicon Valley, it will always help understand and connect IEEE members with the beautiful and complex world of technology.

Would you like your GOLD Affinity Group to be profiled?

Contact us at goldrush@ieee.org for more information.

IEEE **GOLD**Rush

Startups and Small Businesses—A baptism by fire

Jacob Beningo, IEEE Member

The primary objective of most job-seeking engineers is to find a position that provides long-term stability. They usually look for a well-established company with a proven track record that employs between 100 and 1000 individuals. These companies provide a structured environment where each person has their own specific job function based on their experience and training. Very rarely is an engineer required to step outside his area of expertise. There is a known path for advancement, with known expectations and mentoring that helps progress the engineer through the stages of their career. All in all, the pace is leisurely due to company processes and paperwork that must accompany every decision and task, resulting in the use of only well-known and proven techniques.

For a young engineer with an entrepreneurial appetite who is ready to dive in and change the world, a mid to large company will likely only strangle the budding spirit of innovation. It's not that large companies are bad; it's just that as a company grows it becomes set in its ways with procedures and systems that often restrict rather than nurture innovation. For a large company, innovation is an expense that they cannot afford. It is cheaper for them to acquire the innovation through acquisitions rather than to actually produce it.

In order to prevent career stagnation, an engineer may want to consider a small business or a start-up as the next stop for their career. These entities tend to be very dynamic, energetic, tight-nit groups of people that change direction with the wind at a moment's notice. They have the advantage of being small which gives them an ability to respond to customer demands that leave large companies in the dust. This agility and speed allows a small company to try new ideas, products, and techniques and perform revisions in a less formal environment allowing them to quickly produce real solutions.

Engineers who work at a small business often experience a baptism of fire that continually molds and refines them until they either return to the safe confines of corporate America or become a "jack-of-all-trades." Small businesses are often resource-constrained - both monetarily, and in access to experts - which requires the engineer to eagerly jump in and become the subject matter expert. The small business engineer will often be thrown into the fire and expected to put it out. The result is an engineer who is knowledgeable in a wider range of fields than the corporate engineer who is highly specialized. This exposure increases the worth of the engineer in addition to molding them into entrepreneurs and future business owners.

There are few career experiences that can compare to the dynamic and chaotic nature that often surrounds a small business. The road of these engineers is not for the faint of heart. It is filled with risk, uncertainty and the potential for rewards beyond imagination. They offer a calculated risk by being unproven, having a limited client reach and often lacking the ability to offer the same level of employee benefits as that of a large company. It's hard work and it is not for everyone. Engineers at small businesses are highly motivated and passionate people who live on the edge of being workaholics. They need to be able to look beyond procedure and think outside the box and on their feet. They need to be able to see beyond their own personal needs and look at the larger purpose of how they can serve society.

These engineers are thrown into situations which are beyond their level of skill and training - situations which often affect the well-being and stability of the company they work for. The engineer must be able to rise to the challenge and allow the fires to mold them into a better engineer. A small business not only expects but requires you to be more than you are, to exceed the sum of your parts, for survival or certain destruction is always a single decision away. So the next time you find yourself perusing the career ads, take a deep look inside yourself and see if you are ready for an adventure that will change your life. ∎

About the Author

Jacob Beningo, CSDP is a Certified Software Development Professional, Senior Engineer at Badenoch in Southfield, MI. He is also founder of Beningo Engineering which is specializes in engineering services for start-ups and small businesses.

Computing with Words and Evolutionary Robotics

Ali Sanayei , IEEE Member

Robotics has advanced in several areas. We have designed mobile robots able to play soccer, help surgeons, assist disabled people, etc. These robots must have all the necessary data to perform these tasks successfully. For example, a robotic driver needs all the exact data (i.e. the initial conditions) such as the street width, the velocity and acceleration of the surrounding cars, the friction coefficients of the track, the wind speed and direction, etc. Moreover, all these data should remain constant and any change should be specified in advance. Note that the sudden increase of speed of a surrounding car affects the operation of the robotic driver due to an abrupt change of the initial conditions. In this case, the robotic driver is not able to create new information and suggest a solution to self-adapt to the new situation. This simple example shows the weakness of robots when working in environments with inherent uncertainty.

In contrast, humans are able to communicate and make rational decisions in imprecise environments event when faced wih uncertainty and incomplete information [1,2]. In addition, all the tasks performed by humans in such environments are carried out by using linguistic skills (i.e. computing with words) rather than by making measurements and computing with numbers. More interestingly, evolutionary psychology (EP) assumes that our mental abilities, emotions, and preferences have evolved specifically for solving problems of survival and reproduction, and derives testable predictions from this assumption [3]. In other words, in EP the human mind is seen as an information processing system able to suggest appropriate (but not necessarily optimal) actions under different uncertain conditions. Strictly speaking, conditions and actions can be considered fuzzy if-then rules. For instance, suppose that you want to change lanes on a crowded highway and, during that action, some surrounding cars change their speed as well as their trajectories. Even in this changing situation, humans are often able to perform the task successfully without any precise numerical calculation. Consider, for example, a situation in which you are changing to the left lane and another driver increases the speed towards you. If the speed is very high (condition), then you may decide not to change (action). It is important to note that this decision may not be the best (optimal) action, however, it has been made (suggested) based on fuzzy information (very high speed) instead of predetermined information. More precisely, our decision making is based on computing with natural language rather than precise and certain numerical information. In addition, decisions are created to suggest a solution to adapt to the environment. Therefore, the innate mechanisms postulated by EP are plastic and will only come to the forefront in the appropriate context or environment [3].

As we just saw, human reasoning techniques are simple in the sense that they do not deal with precise calculations. On the other hand, they are complex because appropriate decisions are created based on fuzzy and incomplete information. Consequently, to approach human behavior and reasoning, robots should be able to compute with words. Also, pieces of information processing machinery (modules) in EP should be formulated using fuzzy if-then rules to allow robots to make decisions in uncertain environments with incomplete data. This scientific revolution could be regarded as evolutionary robotics. ∎

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About the Author

Ali Sanayei is a student in Electrical Engineering at Sahand University of Technology, Tabriz, Iran, and an IEEE member. He is also one of the American Physical Society (APS) members. His main research interest is Complex Systems. To contact him, please use the email address: ali.sanayei@ieee.org.

IEEE GOLDRush

IEEE GOLD Society Profile
Featuring IEEE Societies supporting Young Professionals

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Timothy Wong, GOLD Representative

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- IEEE Spectrum Editorial Advisory Board
- Proceedings of the IEEE Editorial Board
- The Institute Editorial Advisory Board
- IEEE Thesaurus Editorial Board

IEEE Panel of Technical Publication Editors

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http://www.ieee.org/documents/opsmanual.pdf

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- Books
- Newsletters

Young Professionals and PSPB

The PSPB Operations Manual mandates that one IEEE GOLD representative be appointed by the PSPB VP. The GOLD representative is a voting member of the PSPB. PSPB is the only board in IEEE that provides a GOLD representative with voting rights.

For more information visit:
http://www.ieee.org/publications_standards/publications/pspb/index.html ■

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IEEE **GOLD**Rush

IEEE GOLDRush Notices

IEEE GOLDRush Call for Articles: December 2011 Edition

IEEE GOLDRush invites you to submit an article for publication in the December 2011 edition.

The article topic(s) shall be of interest to young professionals, the primary readers of the publication. Articles must be strictly no more than 700 words and should be sent to the IEEE GOLDRush editor at GOLDRush@ieee.org on or before 7 November 2011. Please feel free to include captioned photos or pictures with your submission. All articles and photo(s) will be peer reviewed and edited if necessary.

Full submission guidelines must be adhered to and can be found at
http://www.ieee.org/web/membership/gold/newsletter/goldrushPolicy.htm ■

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We look forward to hearing from you!

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