The ANIMMA Conference – Advancements in Nuclear Instrumentation Measurement Methods and their Applications has always strived to create a special meeting place shared by all those working in nuclear instrumentation and its applications, as we strongly believe that cross-border exchanges between scientists, engineers, and industrialists can only lead to the most developed ideas, the best solutions, and the most efficient collaborations and partnerships. ANIMMA continues to maintain a high level of scientific and technical quality by presenting not only the latest advances but also the state of the art in each field through the participation of international specialists and experts. It is a ideal meeting for scientists and engineers in the field of nuclear measurement, instrumentation in severe/harsh media, radiation instrumentation, software engineering, data acquisition analysis and treatment, and related applications to present their work and network with their colleagues from around the world.

Previous conferences in this series i.e., ANIMMA 2009 in Marseille (France), ANIMMA 2011 in Ghent (Belgium) and ANIMMA 2013 in Marseille were a real success thanks to the work of all contributors, committees, partners, and sponsors. During ANIMMA 2013 more than 300 oral papers and posters were presented that discussed topics in the areas listed below. In addition, there was a conference-long exhibition with over 20 representatives from industry and research institutes. Over 450 participants attended the conference. Short-courses and workshop initiatives were also successful.

On behalf of the ANIMMA organizing committee, I am pleased to announce that the next international conference on Advancements in Nuclear Instrumentation Measurement Methods and their Applications - ANIMMA 2015 - will be held from April 21st to 24th, 2015 in Lisbon, Portugal at the city’s Congress Center.
It is with mixed feelings that I write this, my last President’s Report as President of the IEEE Nuclear and Plasma Sciences Society (NPSS). It has been a deeply rewarding experience to serve you, the NPSS membership. I am grateful for the opportunity to see our Society from a broad perspective. Coming from the radiation effects community, I have had the opportunity to become aware of all of the activities and excellent science that is accomplished by other technical communities in the nuclear and plasma science and technology. I have interacted with our leaders from plasma science, fusion, pulsed power, radiation instrumentation, particle accelerators, and many others, and I have developed a much greater appreciation of how broad and diverse our Society is. The common thread that holds us together is our passion to advance the frontiers of science and technology. At our AdCom meetings, I looked forward to the reports from the Chairs of our technical committees where we have the opportunity to hear about the success of our conferences and plans for future conferences. Also, I especially appreciate the reports of our IEEE and NPSS award recipients who range from our young student members through our most senior members.

I am completing my term at a time when our Society is doing well by all metrics. In our five-year Society review, we demonstrated that we are financially sound; and the number of our initiatives such as the IEEE Humanitarian Technology Challenge; have increased the number of our members. Also, I especially appreciate the reports of our IEEE and NPSS award recipients who range from our young student members through our most senior members.

The ANIMMA conference will be held at the Lisbon congress center from April 20th to 24th, 2015. For further information, please do not hesitate to contact animma@ipht.fr or check the conference website: www.animma.com.

We look forward to welcoming you to Lisbon.

Abdallah Lyoussi, the General Chairman of ANIMMA 2015, can be reached by E-mail at Abdallah.Lyoussi@cea.fr

I'M BETWEEN STAGE 3 AND 4
First you forget names, then you forget faces, next you forget to pull your zipper up and, finally, forget to pull it down.

George Burns

DIDN'T WORK
A man who would discover a terrible explosive would do more for peace than a thousand of its mild apostles.

Theodore Herzl

BUT WE ARE NOT CIVILIZED
On the day when two army corps may mutually annihilate each other in a second, all civilized nations will probably recall with horror and disgust their troops.

Alfred Hitchcock

Severe accidents monitoring
Nuclear Power Reactors
Environmental and Medical Sciences
Safeguards, Homeland Security
Research Reactors Centro de Congressos, in Portugal

Severe accidents monitoring
Nuclear Power Reactors
Environmental and Medical Sciences
Safeguards, Homeland Security
Research Reactors

The fourth international conference on Advancements in Nuclear Instrumentation Measurement Methods and their Applications (ANIMMA) will take place from 20 to 24 April 2015 at the Lisbon Congress Center, in Portugal. ANIMMA meeting offers an outstanding opportunity to address complex problems and find advanced and innovative solutions.

The program emphasizes the latest developments in all technologies.

Abstract submission deadline: 1 September 2014
Notification of abstract acceptance: 1 February 2015
Early registration deadline: 1 March 2015
Deadline to secure accommodations: 1 March 2015

Short-Courses Organization Chair: Dr. Ludo Vermeeren
Organizing Committee Chair: Prof. Michel Giot
Scientific Committee Chair: Prof. Abdallah Lyoussi
Chairs: Steering Committee Chair: Dr. Bruno Gonçalves, Dr. Christelle Reynard-Carette
Committee General Chair: Dr. Alexander De Leon Battista

ICOPS 2015

www.ece.unm.edu/icops2015/
e-mail: icops2015@ieee.org

January 15, 2015

Prof. Michel Giot

Faculté INST-P

Dr. Christelle Reynard-Carette

ABSTRACTS OF PAPERS

ANIMMA 2015 is the fourth in this series of conferences devoted to endorsing and promoting scientific and technical activities based on nuclear instrumentation and measurements. The main objective of the conference is to unite the various scientific communities not only involved in nuclear instrumentation and measurements, but also in nuclear medicine and radiation. The conference is all about getting scientists, engineers and the industry representatives to meet, exchange cultures and identify new scientific and technical projects to help overcome both current and future unresolved issues. The ANIMMA conference provides scientists and engineers with an extraordinary opportunity to compare their latest research and development in different areas: physics, nuclear energy, nuclear fuel cycle, safety, security, future energies (GEN IV, GEN III+, GEN IV, ITER…), medical and environmental sciences.

The conference topics include instrumentation and measurement for:

Fundamental Physics
Fusion diagnostics and technology
Nuclear Power Reactors
Research Reactors Center
Nuclear Fuel Cycle
Decommissioning, dismantling and remote handling
Safeguards, Homeland Security
Severe accidents monitoring
Environmental and Medical Sciences
Education and Training and Outreach

NPSS News
have a history of running high-quality conferences that are well-attended and financially successful. For this reason I need to thank the many layers of talented and hardworking NPSS members who contribute to the success of our Society.

I have also had the opportunity to interact with other Societies and Councils at the IEEE Technical Activities Board (TAB) meetings, which we have held three times a year. TAB focuses on building and sustaining technical communities that provide technology for the benefit of humanity. As such, Societies and Councils are heavily involved in journals, from which our technical communities develop their identity. More than 160 publications are supported by TAB. Bob Hebner, the Past-President of TAB, is leading an activity to address the impact of the global change in the way we access information. This is not just up to TAB; it is the change to Open Access publishing is unlikely to provide sufficient funding for the Societies and Councils to continue our level of support of the communities and other activities.

When a paper is written, reviewed, edited and accepted by a particular society, the article is turned over to IEEE staff for final preparation and for insertion in IEEE journals for access by subscribers of the IEEE/Elsevier Electronic Library (IEEE/IEL), IEEE All-Society Periodicals Program (ASPP) and other large package products.

The revenue from the sale of these products is distributed through the Periodicals Package Program’s (PPP) algorithm (so do, this is the NPSS algorithm!). This process has worked for decades. But recent changes in funding levels and future changes in the publication business threaten its sustainability. Bob is working to summarize the current term stresses on the system, which are due to funding shortfalls, and to assess the long-term risks associated with the Open Access paradigm. The implications have included cross-subsidies within Societies to maintain publication rates, stretching out submission-to-publication time to stay within budget, and imposing or enforcing stricter page limits for financial reasons. None of these are sustainable actions.

Bob has proposed a Strategic Planning Approach where TAB leadership works with the Board of Directors and IEEE Financial Committee to determine if this situation is an unintended consequence of other decisions or a necessary allocation of reductions during a particularly difficult financial period. The strategic approach will depend on the answer and could include elements ranging from negating a sustainable return, restructuring how TAB entities support journals, and/or exploration of more sustainable outlets for the community-developed IP than the IEEE publication packages.

TABI leadership recognizes the need to be an effective channel for innovative ideas for Societies and Councils to consider and test while successfully containing IEEE corporate leadership that one-size-fits-all innovations are likely to be costly mistakes. If you have suggestions or comments, Bob has asked that you contact him at hebner@ieee.org.

As one of my last actions as President of NPSS, I had the honor of conferring a Presidential Service Citation upon Werner Price on the occasion of his 90th Birthday in October. The document noted his 62 years of continuous IEEE and IEEE membership, including 42 years of service to NPSS marked by his warm personal leadership for over 20 years, of membership development, organization and recruiting through Chapters and Conferences internationally, bringing significant contributions to both IEEE and NPSS, and for his continued faithful service today.” I would like to thank Steve Gold for suggesting the idea of a special recognition for Werner and Ed Lampers for carrying the idea forward and giving a plaque sent to Verri’s daughter to surprise him at the celebration. Many of us NPSS members have been directly influenced by Werner to join NPSS and actively participate on committees. I wish him the very best and thank him for his continued support.

We will also welcome some new TC chairs in 2015, so watch the March Newsletter for more information.

Our first 2015 AdCom retreat and meeting will be held in New Orleans, LA in mid-February.

I am also looking for members to be the Secretary/Newsletter Editor for 2016. The current Secretary/Newsletter Editor Mark Ferrari has decided to step down. If you are interested, please contact Janet Barth, NPSS President, at janet.barth@iddo.com.

FUTURE PLANS

I will be providing an extensive review of this year’s winners of the Bruce Haresunga Medical Imaging Scientist Award Young Investigators Award and Edward J. Hoffman Medical Imaging Scientist Award presented during the recent 2014 NSS/MIC conference in my next newsletter article in March. However, I would like to encourage you all to nominate worthy colleagues from our community for numerous awards which are available from IEEE and NPSS with deadlines end of January 2015. More details can be found at http://www-npss.org/awards/npss-awards/ and http://www-epss.org/awards/ieee-awards/.

Finally, I am happy to announce that NPSS has decided to develop a new journal that will allow publishing all NPSS activities in the medical domain, including different radiation technology and application areas such as medical imaging and radiopharmaceuticals as well as plasma medicine. This new journal will be the NPSS Journal of Nuclear Medicine and Imaging Science (NPJ NEMS) which will be distributed through the IEEE database.

Martin Purschke, Chair of the Computer Applications in Nuclear and Plasma Science Technical Committee can be reached at Martin.Purschke@slac.stanford.edu.

Dimitris Vlakis, NMISC Chair

The 2014 IEEE NSS/PAC Nuclear Science Symposium and Medical Imaging Conferences (NSS/MIC) has taken place at the Washington State Convention Center in Seattle between the 8th and the 15th of November. There were 118 and 461 oral and poster presentations respectively, including a wide range of topics (NSS/MIC/ND/NSD/RMISC/RTSD/SC/SCS) sessions. A short-courses program covering different topics of interest in nuclear science, medical imaging and radiotherapy was included in addition to these short courses sessions during lunch breaks. This was the first-ever paperless IEEE NSS/MIC conference.

The 2015 IEEE NSS/MIC meeting will take place in San Diego, CA, at the Town and Country Resort from the 31st Oct to 7th Nov, and Verri Sassi will be the General Chair for the meeting, while Adam Aleksis and Lawrence McConnell will serve as the PMC Program Chair and Deputy Program Chair respectively.

In 2016 the IEEE NSS/MIC meeting is returning to Europe and will be held in Prague, Czech Republic. Franck Forterre, with myself and Suval Kali Sarker serving as the PMC Program Chair and Deputy Program Chair respectively. The 2017 IEEE NSS/MIC meeting will take place in Atlanta, USA.

The newly elected Council members starting their three-year term from 01 Jan 2015 are Kiru Thielenar, Iaw Sang Lee, Volker Schmidt, Joyce Dutta, and Paul Vaska. I welcome you to look forward to their significant contribution within the NMISC and would also like to thank those who did not get elected this year and encourage them as well as others to volunteer in next year’s elections by contacting Andrew Garretson. NPSS Secretary and Chair of the Nominations Subcomittee who is responsible for putting together the list of candidates every year. I would like to congratulate Steve Meikle for his election as one of our two NPSS Officers and Martin Purschke, the Chair of the Computer Applications in Nuclear and Plasma Science Technical Committee, to develop a new journal to establish a new venue for the IEEE Nuclear and Plasma Sciences Society in good hands!

It has been an honor and a privilege to be your President.

Bob Hebner, NPSS President, can be reached at the Electromagnetic Division, ESTL, Goddard Space Flight Center, Greenbelt, MD, 20771; Phone: +1-301-286-5114 or at bhebner@ieee.org.

THINK ABOUT IT

The senses do not deceive; it’s the judgment that deceives.

Goethe
Newly Elected RISC Officers

As of 1 January 2014 the RISC officers were: Tony Lavietes, Merry Keyser, Gregor Marschall, Joe Mauger, and Stefan Titov - each elected for a three-year term (2015-2017). Tony Lavietes, Merry Keyser, Gregor Marschall, Joe Mauger, and Stefan Titov were as follows:

- Tony Lavietes, Lockheed Martin Space Systems Company, who will give a talk on “Design Challenges for Optical Payloads Inside Spacecraft.”
- Dr. Mark Robbins, Surrey Satellite, who will give a talk on "Radiation Environments of Additional Effort by the Committee. While each
- Dr. Leif Z. Scheick, Jet Propulsion Lab, who will give a talk on "Charging Phenomenon and Associated Hazards."
- Dr. Joseph Mazur, The Aerospace Corporation, who will give a talk on "No Charge Left Behind: A Review of the Charging Phenomenon and Associated Hazards."

The short course should be of interest to both radiation effects specialists and newcomers to the field.

For the most current information on the Nuclear and Space Radiation Effects Conference (2014 NSS/MIC, http://www.nss-mic.org/2014) that will be held in San Diego, California. The format of this conference will build upon the successes of the 2014 NSS/MIC and take advantage of all that was learned from this experiment and thus far, things look pretty good.

The Radiation Instrumentation annual awards for 2014 were presented during the 2014 NSS/MIC. This year, we lost one of our most distinguished colleagues, Dr. Glenn Knoll. In honor of the county’s contributions, dedication to his students, and inspiration to the many people in this field, one of these awards, the Radiation Instrumentation Outstanding Achievement Award, has been renamed as the Glenn F. Knoll Outstanding Achievement Award. The newly titled award has been presented for the first time this year. The awards for this year were as follows:

- Dr. Robert Klanner, Glenn F. Knoll Outstanding Achievement Award, for the development of high-precision silicon detectors and calorimeters, their successful use in particle physics experiments, and the education of junior scientists in physics.
- Dr. Jelena Knezevic, 2014 Radiation Instrumentation Early Career Award, for contributions to developments of Avalanche Photodiodes in Geiger mode, especially SiPMs with bulk-integrated quench resistors for single photon and particle detection, and of DEPSET active pixel vertex detectors.

In addition, since he was unable to attend the 2013 NSS/MIC, we took the opportunity to present Dr. Veljko Radeka the prestigious 2013 IEEE Marie Skłodowska-Curie Award for the development of new radiation detectors, electronics, and systems that operate at the fundamental limits of performance, enabling discoveries in many areas of science. This award was presented jointly by Dr. Craig Woody (NPSS Awards Chair) and Dr. Peter Stacecker (2014 IEEE President).

In these important events, we held two elections within our community. The first was: the appointment of five new members to the Radiation Instrumentation Steering Committee (RISC). It is a pleasure to introduce and congratulate the most recent Radiation Instrumentation Steering Committee (RISC) members, Cirrus Da Via, Ingrid Greger, Marty Kayser, Joe Mazur, and Stefan Titov - each elected for a three-year term (2015-2017).

The presenters of the short course include:
- Dr. J. Z. Scheick, Jet Propulsion Lab, who will give a talk on "Design Approaches for Radiation-Tolerant Space Power Systems."
Since 2005 Dr. Schauer has served as head of the W7-X engineering division and a member of the project board. His team is tasked with concept development, R&D, analysis, tests, and instrumentation of W7-X components, as well as with evaluation of design changes and nonconformities during assembly of the stellarator.

In recent years Dr. Schauer took the initiative to develop a multi-disciplinary technical concept for the HELIAS stellarator fusion reactor with a stronger magnetic field than previously considered. He proposed a new magnetic structure design and showed that the coils as well as the coil protection system could be built on the basis of ITER technologies.

Dr. Schauer’s inventiveness and versatility is documented by his co-authorship of numerous papers as well as disclosed patent specifications and granted patents in different fields of engineering.

Citation: In recognition of his outstanding contributions to fusion engineering and superconducting magnet technology, in particular relating to the design and construction of the stellarator experiment Wendelstein 7-X and design of the stellarator reactor HELIAS 3-8.5°.

2014 RADIATION EFFECTS AWARDS

Janet Barth

Janet L. Barth retired from NASA’s Goddard Space Flight Center (GSFC) and currently holds the position of an Emeritus Scientist. At GSFC she served as the Chief of the Electrical Engineering Division (EED) at GSFC where she was responsible for the delivery of spacecraft and instrument avionics to several of NASA’s science missions, including the Solar Dynamics Observatory, the SWIFT Burst Alert Telescope, the Lunar Reconnaissance Orbiter, the Global Precipitation Measurement Mission, and the Magnetospheric Multiscale Mission. She also oversaw development of microwave and optical communications systems and suborbital avionics systems at the Wallaby Flight Facility. In 2014, Ms. Barth was presented with the Robert H. Goddard Award of Merit, the highest individual honor that can be bestowed to a Goddard Space Flight Center employee.

She began her NASA career as a cooperative education student at GSFC working in the area of radiation environments and effects research. Later she was a lead radiation hardness assurance engineer for NASA flight projects and supported the NASA Electronics Parts and Packaging (NAPP) Program, which focuses on the reliability of electronic parts for space programs. She was a member of the team that developed NASA’s systems engineering approach to radiation hardness assurance for emerging technologies. Starting in 1999, she worked on the development and implementation of NASA’s Living with a Star (LWS) Program as a member of the science pre-formation/proposal team and the LWS Program Science Architecture Team. In 2001 she was selected as the Program Scientist for the LWS Science Environment Tasked and from 2002 to 2008, she was a branch manager in the EED.

Janet is a Senior Member of the Institute of Electrical and Electronics Engineers (IEEE) and is the President of IEEE’s Nuclear and Plasma Sciences Society. She is actively involved with the IEEE Nuclear and Plasma Sciences Society. She is currently the IEEE Nuclear and Plasma Sciences Society (NPSS) Publications Chair and Chair of the IEEE Technical Activities Board Awards and Recognition Committee, at woody@bnl.gov.

Upcoming TPS Special Issues

• Oct 2014 Special Issue on Images in Plasma Science — Guest Editors: Arun Agarwal (Applied Material Inc., Sunnyvale, CA, USA), Matthew Sansonik (Case Western Reserve University, Cleveland OH), Wei Li (Huazhong University of Sci. & Tech, Wuhan, P.R. China), Donald Shafter (Air Force Research Laboratory, Albuquerque NM USA) & William White (Air Force Research Laboratory, Albuquerque NM USA) — 300 papers submitted — Status: submission deadline passed; to be published in October 2014
• Oct 2014 Special Issue on Pulled Power Science and Technology — Guest Editors: Ravi Joshi (Old Dominion University, Norfolk, VA USA), Mark Sinclair (AWE Aldermaston, Berkshire, UK) — Status: submission deadline passed; to be published in December 2014

The IEEE NPS Annual Student Chapter Awards is a professional voluntary organization aiming in, the first place, to serve students, professionals, and engineers interested in Nuclear and Plasma Sciences here in Egypt and all around the world. Realizing that the nuclear engineering discipline is an interdisciplinary field, it was essential to help enabling students to pursue abilities to integrate different disciplines in order to understand certain physical theories or solve certain engineering problems.

The course was among essential mathematics for dynamical systems simulation. It was a prerequisite to a Monte Carlo techniques course to be offered in the near future by the chapter. The course was taught in an intensive way, where the students made short presentations on certain topics introduced during the course. The course provided an explanation of the basic concepts in Linear Algebra and introduced the audience to the basic analysis of differential equations. It is worth mentioning that the course was video recorded, and the lectures are going to be available in the near future, on the web. These recordings will be used to build an open online courseware, which is one of the projects to be undertaken by the chapter.

Lastly, I’d like to mention that on the first of September 2014, the chapter arranged a one-day visit to Egypt’s Second Research Reactor (ETR-2); the visit is aimed at the recognition and visiting the following facilities: the ETR-2 Reactor, which is located around 60 km from Cairo. The goal of this visit was to tour the different nuclear facilities associated with the research reactor and to get an insight into the versatility of services it offers.

We intend to arrange more courses, visits, seminars and conferences in the coming period, as our new-

NPSS NEWS

CONFERENCES 2014, CONTINUED

1. D. Schauer received his Master’s degree in “Technical Environment Testbed and from 2002 to 2008, she was a branch manager in the EED.

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We intend to arrange more courses, visits, seminars and conferences in the coming period, as our new-

from student chapter is now well-established, having new volunteers and a clear administrative structure which guarantees the chapter’s sustainability.

Hossein M. Pang, Secretary of the Alexandria Student Chapter, can be reached by e-mail at rashin@1926@gmail.com.
**Recent Trends in High Resolution Postion Emission Tomography**

By Marc-André Trétrault

Position emission tomography (PET) instrumentation is an interesting sensing point, especially for high-resolution imaging. Detectors for this type of medical imaging modality now showcase spatial resolutions just below the millimeter. This means we are reaching the physical limits given by the photon range, which is the distance the photon travels before it finds an electron partner. So how to improve image quality? What can help biologists and medical doctors improve their diagnosis? One of the answers is to improve image contrast by refining the data quality before it is given to the image reconstruction software.

The original data come from the gamma radiation pulses emitted by the positron’s annihilation with an electron. A detector ring captures this radiation and uses the timing and geometric data to associate related parts with an electronic collimation. The finer the timing data, the better the system can reject the background noise, thus improving contrast. Furthermore, if sufficient timing resolution is available, the reconstruction software can calculate the time of flight and estimate the positron’s location on the line of response (fig. 1), improving contrast. Increasing the timing resolution further becomes a major research topic in the field.

Current detectors reach around 100 to 400 ps full width at half maximum coincidence timing resolution, which translates in a 30 to 120 mm time of flight uncertainty. Although sufficient for human-sized scanners, this is still inadequate for the small animal context. To reach below 100 ps timing resolutions, every aspect of the detector module must be analyzed and optimized [1]. The first element is the scintillator crystal, followed by the photodetector and readout electronics. We will focus here on the latter two.

The current photodetector of choice is an array of single photon avalanche diodes (SPAD), also known as silicon photomultipliers [2]. They are compact, immune to magnetic fields, have good timing, require relatively low bias voltage (<20 V) and have single-photon resolution. On the other hand, their response is nonlinear; they suffer from random dark count noise, which is temperature dependent.

Their excellent timing performance is determined by the photodetection efficiency, to which the so-called fill factor strongly contribute. The fill factor represents the actual photoactive fraction on the detector, which is less than 100% due to dead areas taken up by routing, integrated electronics, and cell isolation. Very simple arrays have only passive electrical elements and reach a 78% fill factor. Application-specific smart devices integrate active circuits to finely control each SPAD device and/or recover per-cell information, but drop to a fill factor as low as 3%.

The compromise between embedded features and fill factor for the target application is therefore a major concern. As for noise considerations, although it is possible to improve image quality, it comes at a price: an increase in the number of photons needed to obtain a meaningful signal.

In the majority of applications, a resolution of 1-2 mm is good enough. However, for “brain research through innovative technology,” as the Brain Research through Advancing Innovative Neurotechnologies (BRAIN) Initiative launched with $100 million in funding through the National Institutes of Health (NIH) Advanced Research Projects Agency (ARPA), and the National Science Foundation (NSF), as well as hundreds of millions in additional investments from numerous foundations. Asking the question posed by the BRAIN Initiative requires the invention of technologies that do not yet exist. That won’t be possible without the participation of engineers from across a wide range of disciplines, says Dr. Marc-André Trétrault, Editor-in-Chief of the IEEE Transactions on Plasma Science.
Biomedical Engineering, 2014 – On how neuroscientists have been the most active participants in the Brain Initiative, but they can’t do the work alone. “Engineers, particularly IEEE members, should play an integral role in this national initiative to develop and advance neuroscience,” he said. Members of the IEEE Engineering in Medicine & Biology Society in particular, he points out, are already international leaders in neuroscience. Getting them together with neuroscientists and representatives from the federal government will help move things forward. “We’re fortunate that we have a lot of federal officials attending the conference,” he said. “This conference will provide an opportunity to hear engineers and view what they are already doing in neuroscience.” According to him, “there are many, many engineers are doing are which are very important parts of any initiative to advance neuroscience.” One clear way to illustrate this is the more than 160 posters that will be presented at the conference. Attendees, he said, “can look at the many poster presentations and get a feel as to what kind of brain research engineers are doing, including developing neural survivors, neural circuits, neural control algorithms and much more.” Similarly, the federal government would like to use the Brain Initiative to engage more people to direct their work in the direction of brain research. Paradigm-shifting technologies come from taking people who have expertise in engineering and physics, and biological engineers who haven’t applied it to neuroscience before and getting them to think about these problems in ways the traditional communities haven’t,” said Kip Ludwig, program director for neural engineering at the NIH’s National Institute of Neurological Disorders and Stroke. Current brain research, Ludwig explained, has largely been the empire of technology. “Theres’s a lot we don’t understand about the brain, and a lot of experiments we have wanted to conduct for years, that now we have the technology available to conduct those experiments,” he said. Technology currently allows researchers to study only a tiny fraction of the 100 billion neurons on the human brain, and even that is only possible by using electrodes that perturb the brain and can cause unanticipated changes. “You can still learn a lot,” Ludwig said, “but you can’t learn everything you want to by any stretch of the imagination.” It hasn’t been enough to determine how the brain creates electrical signals and what roles they play in either health or — more importantly — disease. “We need to be able to identify the circuits in the disease pathology that aren’t working well, why they’re not working well, and understand how electrical stimulation or a drug can correct that abnormality,” he said. “That’s just starting to change following advances in areas such as optogenetic stimulation and two-photon microscopy. “Things are starting to be possible,” Ludwig said. “We’re trying to create this toolbox that will enable experiments that everybody’s always wanted to do and are critical for understanding the brain but we just hadn’t had the ability to measure them.” Takes a Community Solving the challenges of the Brain Initiative will require a large number of people with a large range of skills. “This is dozens of different areas of expertise we’re talking about,” Ludwig said. He said that’s the advantage of federally funded research: it’s a collaborative, collective effort that can exist outside of corporate requirements for short-term goals. “Everyone realizes that this is going to be the engine that drives medical device advances and the economy. What we want to do is to attract more people to do this kind of research than is out there. A great candidate will NOT wait for you when you go off on a tangent to put other fires out. In the meantime, we are starting the interview process, it is only natural for them to look around to see what else is out there. A great candidate will NOT wait for you while you go off on a tangent to put other fires out, travel or go on vacation in the middle of the interview process. We all have to do a better job of communicating. Once a hiring manager pulls the trigger to begin searching for technology talent, you MUST make it a priority. We’ve seen so many talented professionals lost to other companies simply because the hiring manager dropped the ball — too long to interview, too long to make a decision, strong candidates along because they “wanted to see more candidates” — when the right person is sitting across from them. This can cost companies millions of dollars in continued search, delayed projects and lost revenue. • Sell your company as a smart choice. Perks are important, additional vacation time, flex time, paid time off, and others. Yet, in addition, we need to sell our company and the opportunities it offers. Large companies can outpay you, out-benefit you, and provide more resources than you. You have a tough time competing at that level. Do you offer career growth? Do you offer resources a large company just can’t offer, such as an “open door” process, input to the executive team or even the president? Security, equity and compensation incentives the big boys can’t offer? Or travel perks? Do you offer creative, innovative challenges, time to innovate? Ability to think outside the box? Maybe you offer an individual office rather than a cubical. Tell your story, tell why you joined the company. What attracts you to this company? Why do you stay with the company? If you are the founder – tell your successes and failures and your company growth. What challenges do you face as a company and for the position? Allow another member of your team to also meet your candidate and encourage him to share his story as well. — See more at: http://www.todosdayengineer.org/2014/Nov/BRAIN-Initiative.aspx.
Selected Birthday Greetings

Vern, we go back almost 50 years. We have worked together and volunteered together. The times we have spent at the IEEE NSS/ICASC Membership Booth are what I remember best. You are so dedicated, organized, and responsible. Your friendly presence is remembered by all longtime NSS folks. Thank you for your many years of IEEE service. Happy 90 Year Birthday!

Ed Lampers, IEEE-NPSS

Vern has to be the most tech-savvy 90 year old in the world! Not only is he able to use advanced technology, but he contributes to IEEE and genealogy standards, applies technology (such as his technology, but he contributes to IEEE and genealogy community, extensively computer skills.

He might be 90, but Vern’s interests and activities are still vibrant – as attested to by these few selected Birthday wishes, including my own. He still continues active service as a member of the NPSS membership committee where he provides considerable “back room” support. He even attends meetings and assists at the registration desk when long-distance travel isn’t required.

Ted Draft, friend

Each month I look forward to seeing your smiling face check in at the Silicon Valley Computer Genealogy Group meeting – always a little thrill! I also appreciate the adult questions and comments from you in any class I’ve been in. Thanks for your support of the group and the genealogy community.

Lori Alpern, friend

I have many great memories of the times I have spent with you and your family. Do you remember dancing with Martha and me in your living room to Styx or trips to the beach? I do. I spent a lot of time at your house especially during the summer. You and your family were always welcoming and supportive. You had a profound influence on my life. It was nice to have a second home where I knew I was welcomed and loved. I didn’t realize at the time how blessed I was but I do now. Thank you!

Sandra Burnett Blum, childhood friend of Vern’s daughter, Martha

Whenever Uncle Vernon would come to visit, I enjoyed that he would sit down by me and we would visit. We had many great conversations over many years about a variety of subjects. It could have been about cows or computers, old family stories or concern about the world today. Whatever the subject, we just seemed to be able to have a good discussion and both enjoy it.

Joe Jones, nephew

I had called Uncle Vernon to help me with my father’s computer...Dragon Speak...etc...It was just like having you in the same room. Your quiet voice walking me through the steps. Like you were looking over my shoulder, gently, step by step until I understood what I needed to do.

Heather Scaife, niece

Vernon you are the most patient man I know. A great kind, spiritual companion to my sis Pat and a wonderful loving father to your children. You taught them well.

Colleen Gantly, sister-in-law

Ed Lampers, long-time NPSS member, past treasurer, and current elected AdCom member from the Radiation Instrumentation community.

NPSS is privileged to offer heartfelt Congratulations and Gratitude to Vernon G. Price on his 90th birthday, with assistance from Vern’s daughter Martha Siegel and Karen Zematis, and NPSS secretary Albe Larsen. Ed can be reached by E-mail at e.larsen@slac.stanford.edu.