### IEEE President-Elect Candidates Address Computer Society Concerns

The IEEE Computer Society has established a reputation for excellence within the fields of computing. As a component of the IEEE, the Computer Society’s activities parallel those of 38 other IEEE societies and councils serving the computing and engineering disciplines. Representing by far the largest IEEE society contingent, the Computer Society has 85,000 members, approximately 60 percent of whom are full IEEE members.

Recognizing the impact of IEEE leadership over the Computer Society and in turn the power of Computer Society members’ votes to influence the selection of the IEEE leadership, we posed questions to this year’s IEEE president-elect candidates. Because this election determines who will serve as president-elect in 2012, president in 2013, and past president in 2014—vital positions within the IEEE’s governing body—our members must cast informed votes.

Our volunteer leaders have identified the following questions as essential to the Computer Society, IEEE, and the Computer Society’s relationship with IEEE. The first response to each question states the Computer Society’s position. These positions synthesize the views of our most senior leadership: the Society’s current, past, and incoming presidents. We present these questions and answers (limited to 150 words each) to help you make your decision in the IEEE annual election. Only ballots received by noon, central time, on 3 October 2011 will be counted.

We also remind and encourage you to cast your vote for Computer Society leaders by 4 October 2011 in our Society election.

—John Walz, IEEE Computer Society President-Elect

<table>
<thead>
<tr>
<th><strong>IEEE President-Elect Candidates Address Computer Society Concerns</strong></th>
<th><strong>IEEE President-Elect Candidates Address Computer Society Concerns</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ROGER D. POLLARD</strong>&lt;br&gt;Roger Pollard’s professional career has been in both academia and industry. Until September 2010, he was Professor and Dean of Engineering at the University of Leeds, UK. Since 1981, he has also been a consulting engineer at Agilent Technologies (formerly Hewlett-Packard Company), Santa Rosa, California. He has made research contributions to high-frequency devices and is noted for work in microwave and millimeter-wave circuits, network measurements, calibration, error correction, and large-signal characterization. Pollard has authored contributions in books, more than 150 journal articles, three patents, and commercial publications. He was elected to the UK’s national academy, the Royal Academy of Engineering, in 2005, and is an IEEE Fellow, a chartered engineer, and a Fellow of the IET (formerly IEE). Contact him at <a href="http://www.rogerpollard.org">www.rogerpollard.org</a>.</td>
<td><strong>PETER W. STAECKER</strong>&lt;br&gt;Peter Staecker received BS and EE degrees from MIT and an MS and PhD from Polytechnic University. His professional career started in 1972 at MIT Lincoln Laboratory, where he developed microwave design and test techniques for satellite communications. In 1986, Staecker joined M/A-COM, where he led program, product, and process development, then helped the company’s transition from defense to commercial markets. During this period, he also established strong ties with US and European universities and with research organizations. He retired from M/A-COM as Director of Research &amp; Development. Staecker has served industry and government on manufacturing and advisory panels and is a consulting editor to <em>Microwave Journal</em>. He is the past-president and an Honorary Life Member of the MTT Society and is an IEEE Life Fellow. Staecker’s 28-year service to IEEE includes leadership roles in finance, strategic planning, publications, and membership. He has served on the IEEE Board of Directors for five years.</td>
</tr>
</tbody>
</table>
With changes in technology happening so quickly and frequently, IEEE’s biggest challenge is keeping pace with the creation of member communities in emerging technologies. We need to be agile and flexible in welcoming as members people working in areas that are outside our present comfort zones.

We must recognize that today’s IEEE is divided into disciplines, but it is the multidisciplinary problems that define the real issues facing society. These problems have been expressed in terms of the “grand challenges,” all of which are interdisciplinary and most sit in IEEE fields of interest. To support members operating in multidisciplinary technology, we need to create new multidisciplinary technical communities comprising member societies to open up these new areas. The Computer Society is fortunate in that its subject is an essential part of the majority of solutions and it has the benefit of being embedded in the technically rich environment of IEEE.

First, follow the lead of the Technical Activities’ Future Directions Committee (FDC) which currently

• identifies technology trends and coverage opportunities, and
• fosters development of products and services in these areas.

The goal is to create a model for nurturing a community within Technical Activities’ current structure that reaches across existing societies while maximizing member and customer value with minimal governance and bureaucracy. The FDC has been encouraged to develop a “maturity model,” and I support this effort. This model should also periodically examine common technical fields of interest among communities in neighboring fields of interest, with the view of better serving the member, customer, and public.

Encouraging new technologies through new conferences or special topics publications will add relevance to membership and customers, while providing identity and support to contributors. Colocation of these conferences can support the new technology within the structure of the parent community.

An increasing number of emerging technologies are competitors to long-established groups. In attempting to present an interdisciplinary face to the world, we often foster internal fragmentation that may threaten our effectiveness.

• How would you integrate emerging technologies into the current IEEE structure?
• How would you encourage new groups to cooperate with or be adopted by existing units?
• How can the IEEE encourage and support the inclusion of new technologies without diverting support from the existing entities?

The president should lead the IEEE in developing effective mechanisms to determine the viability of new groups and then help viable groups integrate into existing entities. While IEEE funding has jump-started smart grid, cloud computing, life sciences, and other new initiatives, IEEE is generally late to the game by recognizing emerging technologies.

One effective mechanism to recognize emerging technologies is by analyzing Xplore downloads for spikes from subscribers with broad interests across several Societies’ field of interest. After funding an incubation period to organize leaders from several Societies/Councils, a Multisociety Technical Group can be organized under TAB. This structure could encourage the inclusion of new technologies without diverting support from existing entities. It could also attract and expand the audience of authors and subscribers by defining their field of interest using the Xplore indexing scheme. Finally, virtual journals in focused areas of interest can be created.
### QUESTION 2: Professional development

An important role and contribution of IEEE to industry is to improve the caliber of professionals, whether currently employed or about to enter the workforce. Professional development activities and continuing education are valued by industry members and their managers and are key to membership retention. However, IEEE has offered limited products for continuing education, self-directed learning, and credentialing.

- In your opinion, how much importance should IEEE place on professional development for its members?
- How can the IEEE help its societies offer professional development products and services?

### COMPUTER SOCIETY POSITION

The Computer Society has offered self-directed learning as a member benefit, along with certifications and professional education programs in software engineering.

IEEE can help Societies like the Computer Society by providing resources for market research, sales and marketing, and funding for new initiatives aimed at professional development. We support the expansion of the all-IEEE professional education eLearning platform as the vehicle for high-quality asynchronous learning. This product needs to respond to market trends and demonstrate a good balance between breadth and depth. The IEEE president can support these efforts by making career development and lifelong learning a priority for his presidential year.

### Pollard

It is clear from surveys that the number one reason members join IEEE is to remain technically current. Members also tell us that they see membership as enhancing career opportunities and providing continuing education. Therefore, IEEE needs to invest in professional development products, improving the quality, availability, marketing, and support. We need a central professional IEEE facility for the creation of multidisciplinary continuing education products, making it easy for Society volunteers to contribute to the creation of high-quality materials. Continuing education needs to be offered as a member benefit and have a coherent structure, not just a menu of modules, that offers a recognized qualification on completion.

IEEE should not compete with commercial activities or with our own members who are professionally engaged in providing CE, but buy in services as appropriate.

### Staecker

Professional development is one of IEEE’s most important services to its members because it includes both soft and technical skills necessary for career success.

At the top level, I would encourage Educational Activities, Standards Activities, and Technical Activities to work together to formulate needs for the practicing technologist while identifying best service practices. They should also develop affordable and accessible common infrastructure that societies and sections can use. Societies with existing programs should be prominent members of this task force. IEEE marketing and research should work with societies without programs to determine what programs would be effective for members—and nonmembers—in their technical space. Sections and their chapters should be engaged to advise and execute efforts to create workshops or short courses. This is truly a cross-disciplinary effort, and one that is of greatest impact when it is relevant at the local level.
I believe that it is important that industry and academia must not be seen as being in competition; both contribute in different ways to the richness of modern technology. Many academics also work in industry—we must identify these people and use them to forge stronger bonds with companies. As well as carrying out research that finds its way into commercial products, academics recognize that they are training their students to work in industry—this mutual interest is a good point of contact that IEEE must understand and foster through activities in student branches. We must recognize that IEEE conferences are often the best venue to form links. The combination of an academic conference with a trade show will ensure that there are plenty of opportunities for the two communities to mix. I have more than 30 years of experience with successful programs connecting academia and industry.

First, congratulations on establishing your Industry Advisory Board. These external industrial leaders are telling us how to be relevant to our practitioner community, and they represent a model that should be replicated throughout IEEE. Similarly, a Computer Society Academic Advisory Board can advise the Society on creating value for the academic community; in addition, having a joint meeting of the two might bring academics and industry folks to identify a single purpose on broader issues that are important to both groups.

In IEEE, my experience with Technical Activities as well as my own Society (MTT) has been that the key to connecting everyone is the Strategic Plan. First, have one, and then make sure one of your strategies is to serve the two communities or, better yet, connect them.

Technology transfer between research and theory and commercial applications should be the sweet spot for IEEE and the Societies/Councils to occupy, as evidenced by the venture capital industry. The Computer Society’s Industry Advisory Board’s Industry Perspective papers could be posted in a separate area in Xplore for access by practitioners. Furthermore, requesting conference authors to supplement their abstracts with their view of the paper’s relevance to industry could assist in the selection of sets of conference papers that can be commercialized.
It is vital that IEEE has an efficient, effective, coherent, flexible, responsive, affordable, and consistent infrastructure. Economies of scale can be derived from doing as much as possible centrally. But we must work to determine the right level of central costs and how to share fairly these expenses. We must be sensitive to the different needs of those parts of our organization that operate in many businesses and vary the rules accordingly.

The guidelines for IEEE’s financial management must ensure that spending proposals have good business reasons, are financially sound, and are properly reviewed. Financial transparency is vital, and volunteers throughout IEEE’s organization should understand how IEEE finances work and contribute to the decision-making. We must invest in quality IT systems that not only provide access to IEEE’s world-class information resources but also improve support for members and customers worldwide.

The Computer Society supports IEEE’s plans to modernize its IT infrastructure, which should reduce staff efforts and allow volunteer leaders easier and quicker access to tailored and relevant business and technical information. On the other hand, IT centralization can lead to a “one size meets all” approach that may stifle the operating units’ ability to serve specialized markets. A service-oriented architecture can produce software for creating and using business processes, packaged as services for every OU, which have varying needs, to tailor and subscribe for their growth.

The Executive Director has accountability for the IEEE staff. Head count has remained relatively flat for many years—in spite of our growth in revenue. This piece of IEEE infrastructure is not the problem.

We should identify appropriate metrics at the organizational unit level and monitor them by reporting them up through the OU treasurers to the IEEE Financial Committee for disclosure to the IEEE Board of Directors.

To support future IEEE growth, the BoD has approved investments in IT and publications infrastructure and new initiatives at a rate exceeding 5 percent of revenue per year. This is a necessary commitment to growth.

In addition, we should

- consolidate efforts in the publishing and conference space, both in-house and with external vendors, to achieve economies of scale;
- encourage opportunities for growth in our new initiative portfolio; and,
- examine near-term strategic objectives for insight into other areas of smart spending.
The strong growth in conferences in recent years has resulted in some meetings in which material of questionable quality has been included. This tarnishes the overall IEEE brand and has a negative effect on the reputation of the whole of IEEE output. This problem, and the effects of having more conferences often organized by less-experienced people, has led to the need for increased oversight of the management of IEEE’s conference business. Volunteer conference organizers guard their independence and are, rightly, concerned about the increased workload brought about by the need for improved accountability.

To achieve an appropriate balance, we need clear guidelines for potential conference organizers on the requirements necessary to ensure financial management and technical quality. IEEE must provide a comprehensive set of easy-to-use tools for conference organizers that will significantly simplify their tasks and help them ensure compliance with IEEE requirements.

Quality includes relevance to the target audience, financial return, technical excellence, and volunteer recognition. The proper balance is a matter of culture and vision—of the event, its location, the sponsoring organization(s), and the volunteer leaders.

A hands-on culture puts a premium on

- value added to the volunteer experience,
- direct feedback on quality issues via interaction between conference volunteers and the “customers,” and
- increased positive financial return.

The key to balancing the increased reporting needs while keeping volunteer work manageable is to create effective management and accounting tools that allow most of the data to be recorded and reported automatically. We need to put in the hands of conference organizers a suite of tested and user-friendly tools that would allow them to focus on their role as intellectual leaders of the activity and minimize the need to provide routine reports and financial results.