The IEEE Computer Society has established a reputation for excellence within the fields of computing. As a component of IEEE, the Computer Society’s activities parallel those of 45 other IEEE societies and councils serving the computing and engineering disciplines. Representing by far the largest IEEE society contingent, the Computer Society serves computing and IT professionals within IEEE and its network of more than 400,000 members worldwide.

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 IEEE leadership, we posed questions to this year’s IEEE president-elect candidates. Because this election determines who will serve as president-elect in 2014, president in 2015, and president emeritus in 2016—vital positions within 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, incoming, and emeritus 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 CDT USA/17:00 UTC time, 1 October 2013, will be counted.

We also remind and encourage you to cast your vote for Computer Society leaders by noon EDT 7 October 2013 in our Society election.

Dejan Milojićić
IEEE Computer Society
President-Elect

TARIQ S. DURRANI
Tariq Durrani (www.tariqdurrani.org) joined Strathclyde as Lecturer (1976); Appointed Professor (1982); Department Head (1990-1994); and Deputy Principal (2000-2006) responsible for university-wide, large-scale strategic developments. His research covers communications, signal processing, and technology management. He has authored 350 publications; conducted collaborative research with industry and in major European research programs; and supervised 40 PhDs. He currently holds visiting appointments at Princeton, University of Southern California, Stirling, and UESTC Chengdu.


Tariq has held Directorships in eight organizations including the UK National Commission for UNESCO, and has served as advisor to governments of the UK, the Netherlands, Portugal, the UAE, the US, and the European Union.

He is a Fellow of IEEE, the Royal Academy of Engineering, the Royal Society of Edinburgh, and IET.

In 2003, he received the title OBE (Officer of the Order of the British Empire) “for services to electronics research and higher education” from Queen Elizabeth II.

HOWARD E. MICHEL
Howard E. Michel (www.HowardMichel.net) retired from the US Air Force in 1994, having been a pilot, satellite launch director, and engineer, including in the People’s Republic of China, where he served as a senior US government technical representative enforcing technology-transfer control plans and procedures during two satellite launches. Other achievements include successfully launching seven US satellites by directing launch-base test and integration (involving booster, satellite, and telemetry-range hardware) and developing US Department of Defense engineering processes for mission-critical computer systems.

Howard is a consultant for the US DoD and private industry in the area of embedded systems, avionics, instrumentation, and systems engineering.

Howard is Associate Professor of Electrical and Computer Engineering at UMass-Dartmouth. He has secured research funding from US NSF and NOAA. He holds two patents and has published a textbook, 15 refereed journal papers, and 70 conference papers, posters, or abstracts. He has graduated three PhD and 35 MS students.
In the evolving world of modern products and services that are customized for personalized delivery, how might IEEE deliver the best possible value to its members?

**Durrani**

I would like to make the following points:

- The availability of tools and services that support the development of members’ careers has been recognized as a key member service, required almost worldwide. IEEE and its Societies can and should provide tailored education and training material and e-learning programs for career enhancement and for updating members’ knowledge base. As IEEE VP Educational Activities, I have encouraged the development of the IEEE e-learning library, which represents a comprehensive resource. The Computer Society’s offerings through its own Digital Library would reinforce the e-learning library.

- Mass customization of technological information—offer information products to members, constructed from across the range of IEEE publications, customized to suit their requirements.

- Encourage multilingual translation of IEEE publications, serving members’ needs worldwide and opening new markets for IEEE products.

- Seek to extend, geographically across IEEE, member benefits currently only available in certain IEEE regions.

**Michel**

Alan Kay and others have said, “The best way to predict the future is to invent it.” IEEE must exploit evolving technologies and lead in “disruptive innovation.” We need to provide individualized information 24/7 in customized ways for all 400,000+ members, creating an interactive web of knowledge where researchers and practitioners can communicate and build knowledge together “in real time.” We need to break the artificial barriers between the ways people really work and the ways IEEE has traditionally worked. We need to focus more on consumers while not forgetting authors and reviewers. We are starting that now with Communities in Technical Activities (TA) and a professional networking environment developed jointly between TA, Member and Geographic Activities, and Publications Services and Products. We are the experts in technology. Let’s create the platform of choice for practicing engineers and academic researchers to find and exchange information in real time using that technology.
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<th>QUESTION 2: Disruptive technologies</th>
<th>COMPUTER SOCIETY POSITION</th>
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<td><strong>2</strong> How do we best support the innovation associated with emerging disruptive technologies, such as nonvolatile memory, photonics, software-defined networks, big data analytics, and many others? Would the candidates be willing to sacrifice a unit of IEEE if it were slowing the advance of a technology?</td>
<td><strong>2</strong> The evolution of technology requires revision of the status quo. For example, multicore and nonvolatile memory have changed programmers’ thinking and require rewriting software stacks. The IEEE CS is delivering hands-on content, education, communities, and standards to its membership to keep up with these trends. The IEEE CS strives to remain agile, quickly organizing new events to address new technologies; we archive the innovative results in new digital and multimedia journals (<em>Big Data, Cloud</em>). The IEEE CS is also focused on the next generation of computer scientists, promoting student competitions while recognizing significant achievements by delivering awards to distinguished professionals in the field that have introduced disruptive technology innovations.</td>
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**Durrani**

Within IEEE, disruptive technologies are best managed through two approaches: one, the IEEE Societies take a lead in promoting emerging technologies. The role of the Computer Society in nurturing the area of Big Data and the Society’s contributions to the development of multidisciplinary activity in the Smart Grid area are illustrative examples. The other approach is to establish a short-life task force to identify trends and opportunities, for example, the current initiative in Life Sciences, and then embed the activity within a Society that takes the lead in developing and supporting the emerging technology.

The issue of sacrificing a unit is not directly relevant. The key point is whether an IEEE Organizational Unit (OU) can be sunset if it is not delivering or performing its function. An effective leader should be sensitive enough to perform careful surgery rather than an amputation. I have the senior management experience to do so.

**Michel**

IEEE must make strategic investments to develop strengths—new technical societies, communities, publications—in disruptive technologies. Some of this investment will come from existing resources, such as when experts from one field change research directions. Other investment will come from recruiting new people and resources representative of these disruptive technologies into IEEE. Let’s grow IEEE. IEEE should put a heavy emphasis on directly recruiting these new members or developing strategic partnerships with other organizations. IEEE is the “big player” among similar professional societies. We need to reach out to them for our mutual benefit. Resources for these initiatives could come from the IEEE New Initiative Fund, or through direct leadership by the IEEE President. But at the same time, this does not mean that IEEE should abandon older technologies. We need to continue to invest in our strengths, including our many excellent technical societies in our traditional fields of interest.
**QUESTION 3: Open access**

The open access publication model is still evolving. Where do you see the future of open access in the areas of publications (journals, conferences), standards, courses, and other IEEE products and services?

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**COMPUTER SOCIETY POSITION**

Considering Facebook’s Open Computer specs, open source history (operating systems, databases, browsers), and Google’s openly accessible books, the IEEE Computer Society is striking a balance between sustainable and completely open publishing. Without compromising high standards of publications, the IEEE Computer Society is exploring different business models (sponsored publishing, advertisements, practitioner’s conferences, lectures, and so on). The IEEE CS plans to further experiment with opening up conference papers through immediate and delayed models and by introducing new open access transactions on emerging technologies.

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**Durrani**

Open access is an activity whose time has come, and it is in the best interests of IEEE to participate. The current initiative through the IEEE Publications and Services Board, where I have served as recently as 2011, is taking the correct approach—developing new open access publications, while offering open access to all other IEEE publications, is the way forward. In this context, IEEE aims to increase the impact that scientific research can have on technology innovation through its first online, open access “mega journal,” which covers a range of disciplines instead of a single-topic focus.

The same moderated approach should also hold for other IEEE products, such as learning programs or professional training courses. The exception is IEEE standards, developed through significant effort on the part of IEEE and its industry partners, where proprietary considerations take precedence.

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**Michel**

The immediate future for publications is open access. IEEE has over $1,000,000 in open access publications that have already been reviewed and accepted. The change to open access will require a different mindset for authors and universities, with both open and traditional publishing being supported in the near term, but I see the trend toward open access increasing as authors appreciate having their papers more accessible. However, I think open access is only a stepping stone to changes in publishing. As I discussed above, authors, readers, and reviewers are moving to customized, personalized, and instantaneous modes of sharing information. Our modes of “publishing” must adapt to the new modes of communications. I don’t see the same trend in standards or courses. In fact, I think that many of the massive open online courses have failed to deliver the value many hoped for.
**Durrani**

IEEE shall remain a member-driven organization under my leadership. For an organization to remain effective, grow, and succeed, there needs to be a mutually supportive relationship between executive staff and volunteer members. Fortunately, such a mutually reinforcing relationship is the cornerstone of the current success of IEEE.

The IEEE Board of Directors provides vision and future strategic directions. The role of staff is operational, aimed at implementing strategy, delivering the day-to-day functions of a large global organization.

To succeed, an organization has to be open to new ideas, wherever they may come from, top down or bottom up. It is the mettle of a leader to ensure harmonious progression. Having held senior management positions at my university and on the boards of IEEE and other leading professional organizations, I have the breadth of experience, management skills, and drive to lead IEEE to future success.

**Michel**

I think the correct governance model for IEEE is a partnership between volunteers and staff—the model we have now—with a bias toward volunteers because volunteers bring insight into critical issues that affect our members. IEEE is a member-led organization, and the IEEE Board of Directors—a technically and geographically diverse body—is composed entirely of members volunteering their time. IEEE’s member-volunteer-led Board, with staff assistance, sets a high-level, unified direction in carrying out IEEE’s mission and bringing value to every member, but local innovation in how to deliver that value is essential—innovation must flow from the bottom up as well as from the top down. Your question presupposes a disagreement between a society and “TAB committee,” but the fact is that the Board—and each individual director and officer—must act in the best interests of IEEE, and that is the final arbiter on any subject.
**QUESTION 5: Membership**

**5** How should membership recruitment and programs evolve to best meet the needs of current and potential IEEE (and society) members?

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**COMPUTER SOCIETY POSITION**

**5** IEEE and the IEEE CS are volunteer organizations that need to financially sustain their existence through membership and other fees. But the world is expanding from this model, exploring new business opportunities, such as advertisements (Google, Facebook), sponsorship from a subset of members (LinkedIn), and many others. The IEEE CS continuously explores how to reduce its membership fees and maximize the value to its paying members as well as to all professionals in the world. Our goal is to benefit all developers and researchers, academics and practitioners, and professionals and students alike.

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**Durrani**

**5** My vision for IEEE is as follows:

- A worldwide, irresistible magnet that draws professionals, practitioners, academics, and students to its fold through excellent opportunities and services.
- A home for life for the engineering and technology community, and indeed for individuals from cognate disciplines, thus leading to membership retention and growth.

To achieve this, we need to develop innovative models of membership, ranging from e-membership that takes into account variations in member income from different IEEE regions, to incentivizing young members through gradually increasing membership fees as their career progresses.

Membership includes recruitment, admissions, retention, and elevation. Initiatives need to be aimed at each of these phases, and products and programs offered that meet current expectations and future needs. Thus career mentoring, continuing professional development, and industry-oriented programs such as the Smart Tech Metro Area workshops to update engineers in emerging technologies all play a part in the membership drive.

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**Michel**

**5** Recruitment is not the problem, retention is. We recruit and lose 80,000 to 100,000 members—25 percent of our members—every year. As Vice President Member and Geographic Activities, I looked at data that says this churn is because many members don’t find value in our products and services. We need to do a better job advertising what we currently offer, and concentrate on improving the ones that members say are of highest value, but poorest delivery. Our members want better professional networking, continuing education, and online career resources. We need products and services to facilitate career security for working engineers and computer scientists just as we do now for academics with our journals and conferences. We need to connect academics with practitioners—use IEEE Future Directions to guide and empower practitioners in career choices. We need to bring all our benefits to all our members within the limits of local laws.