

Summary of the IEEE IRI-2007 Industrial Funding  
Panel Meeting Opening in the Las Vegas Hilton, Las  
Vegas, NV, on Monday, August 13, 2007, before Cindy  
R. Bowden, Certified Court Reporter, in and for the  
State of Nevada

by

Stuart H. Rubin, IEEE/AAAI Liaison  
September 12, 2007

This is a distillation of 163 reported pages.  
The first half of this panel was held in open session  
before and IEEE IRI audience. The second half of this panel  
was held on the following day in closed session.  
See <http://www.sis.pitt.edu/~iri07/> for a description of  
the panel and the conference it was organized under.  
All those appearing below, as well as audience members were  
informed, a priori, that the workshop was being "recorded"  
for reporting purposes.

**APPEARANCES:**

**For the Panel:**

**Stuart Rubin (SR)** (Presiding), SSC San Diego and  
Conference Co-General Chair  
**Shu-Ching Chen (SC)**, Florida International Univ. and  
Conference Co-General Chair  
**William Gruver (WG)**, Past President of the SMC and Div. X  
director; Prof. Emeritus at Simon Fraser Univ.  
**Michael Jiang (MJ)**, Motorola Labs  
**Gordon Lee (GL)**, San Diego State Univ. Assoc. Dean  
**Michael Leyton (ML)**, Dymax Institute, Rutgers Univ.  
**June Massoud (JM)**, Genesis Consulting, Inc., Montreal,  
Canada  
**Mariofanna Milanova (MM)**, Univ. Arkansas Little Rock  
**Michael Smith (MS)**, Sr. Past President of the SMC  
**Daniel Yeung (DY)**, President-Elect IEEE SMC Society; City  
Univ. of Hong Kong

**TOP TEN SUGGESTIONS (IN ORDER):**

1. Limit the scope of the transactions to better reflect industrial interests and concerns through the use of an industrial steering committee.

- 2. Appoint more associate editors from industry. At least one-third of associate editors and PC members can be garnered through industrial networking.**
- 3. Get industrial people to participate on the board.**
- 4. Set up Technical Committees with a focus on industrial systems such as defense.**
- 5. Reprint a limited number of industrial articles from the IEEE and possibly outside sources (copyright permitting) to foster application development.**
- 6. Publish in the back of the transactions a list of all relevant patent disclosures and encourage the publication of articles on the same. Include an open forum that addresses industry news.**
- 7. Present Technical Correspondence papers at the level of a magazine to better attract industrial interest.**
- 8. Create society magazines using industrial advertising.**
- 9. Work to modify the standards for tenure and promotion to involve better recognition for development work – thereby fostering better industrial collaboration.**
- 10. Work with the IEEE to develop a Congressional research lobby.**

THE OPEN SESSION BEGINS AT 3:43 PM.

I opened up the panel discussion with the question of how to increase industrial participation in the scope of our journals. The problem we are facing is that not enough industrialists are subscribing to these journals and reading them. Some are publishing in them and I think that we have more people wanting to publish in our journals than subscribe to them. The salient question is, “How can we increase industrial participation in all of our journals?”

GL: 20 years ago the IEEE Control Society had a similar problem. One thing they did to solve this problem is to create a control systems magazine. Another important thing we did was to get industrial people to be participating on the Board.

WG: I was also active in the Control Systems Society back in the 70s. We started the control systems magazine and that was an excellent vehicle for providing some popular support among industrialists.

MS: A lot of people in industry do not publish because there’s not a lot of incentives for them to do so. Another possible solution is having SMC publish a technical magazine, like the Control Society. SMC is more broadly based by its nature. The question is will there be enough advertising to support such a magazine.

SR: Industry support follows industry need. The IEEE Transactions on VLSI is successful because they publish on what industry needs to know to remain economically viable. What I'm getting at is that the SMC needs to find a binding application – maybe soft computing, maybe systems, or AI, etc.

JM: The need for industry to protect their intellectual property rights precludes an interest in publication.

MM: I agree with JM completely. Perhaps the key is to use the Transactions as a vehicle to spur competition among companies.

ML: Professors should be free to move back and forth between universities and industry – even within a single year. This is not currently happening, unfortunately, in the industry, and industry is suffering greatly because of it.

MJ: Industry is desperate in looking for new ideas. When money was good, we industrialists got on panels, presented at conferences, published in journals, and so on. Now, we are forced to get out of it. We need workshops that really solve industrial problems. Then, more industry people will participate.

DY: I worked in industry for about nine or ten years. I think the important thing is to get industry people to be less confused that a society like SMC or organizations like the IEEE can really help them to do their jobs better. We can achieve that. I think one idea is to use our existing mechanism called the technical committees. We currently have about 20-25 technical committees in the three areas. We are a bit weak in systems, but have a good number on the other two. Now, I think we can use the technical committees as a driving force to help promote industrial participation and promote SMC activities as well. We will focus on a certain technology (e.g., VLSI) like SR mentioned. The other way of thinking is to set up TCs with a focus on industrial centers like defense, or whatever. I like, for example, the defense people driving the systems. This is the new direction, which I think is very fruitful.

SR: The problem is the disconnect between basic research, transition, and application development. If you don't have those applications, you reduce yourself to an abstract mathematical society, which has its place and its usefulness in its own right. But, it's not going to work for a computer society. I don't see it working like we have. IEEE Transactions authors need to include a section to show the industrial relevance of their papers. ... Industrialists will say, "Why should we subscribe to the Transactions when we already have that?" We need to focus on novel publications having industrial relevance.

MS: I think one of the problems is that a lot of industry people feel that they don't have much to contribute – journals with and by academics and for academics. A lot of times people are writing design application papers. Sometimes they feel that somehow their contribution may not be that important. Industry people are usually the ones to define industry trend requirements and visions, not academics.

SR: That brings up a suggestion I made maybe half a year ago. That is, if you took a look at all the papers that have been published and all the IEEE Transactions and identify the outstanding ones in terms of the number of hits and leadership, why not republish them in a different transaction with the notarization that this paper has been a landmark paper, and it relates to this transaction, so we want you to read it. Maybe that will cause cross-fertilization of the field.

Zadeh (Audience): Research is very fashionable and it is popular these days. If you invite somebody from Google and that person accepts, then others will follow. Also, people in the academic world become preoccupied with respectability. People on the street recognize that. That is why there is this lack of interest.

Zhang (Audience): It wouldn't hurt for us to take a look at IBM's or Microsoft's own journal and see what has been published there and if it overlaps with what the SMC Transactions have to offer. Also, industry increasingly has their own set of conferences. We have to be more cognizant of what they are pushing.

SR: Why not put in the back of the transactions a list of all the relevant patents that have been disclosed so they are free to be mentioned, and then encourage people to publish on those patents inside the transactions, not require it, but encourage it? We should also encourage people to publish articles on those patent disclosures. It's a thought that might actually achieve one of our objectives and that's to increase financial involvement of the industry.

ML: Fraunhofer approached me to create a Fraunhofer Institute of Industrial Mathematics in this country and I'm looking into that. European industries recognize for an industrial-academic consortium and American industries need to do the same. America is falling behind and Europe is going to the front. And one reason is that it does have this much higher scientific understanding of what is required in an industry, the mathematics that's required, the computation that's required. They understand in Europe that we need individuals – the individual to come and work for us to be highly trained in theoretical systems because we can't – you can't get an airplane to work without doing the theoretical analysis of the different equations, and then what that means in terms of computation lists and so forth.

JM: I completely agree with ML.

SR: An issue that was brought up is to change the scope of the transactions – at least in Part B. We are receiving more papers here than can be published. We should refine the scope to better encompass industry interests, while not to exclude relevant novel papers. Also, we should consider requiring abstract to be more readable.

MS: ...What would industrialists like to contribute and read? What would the academics like to see that they have learned from industrial papers and vice versa?

Zadeh (Audience): ...Is the number of industrial papers going up or down in relation to the number of academic papers? This statistic should not be difficult to get.

SR: What are you getting at?

Zadeh (Audience): Where do we stand? I don't know. Nobody has answered that question. That's why I think we should really get that information and I don't think it should be difficult to do it.

MS: ...It can be difficult to access the information by IEEE.

WG: I can actually add there's a major issue before the Board of Directors at IEEE dealing with what's called an open access. These are – there's a whole class of journals which go beyond what IEEE is doing right now. This is causing a potential risk in the future for the actual IEEE journals to basically use their income string. That's the problem now that we don't have a solution for. ... In the United States as well as Canada where I am, in Germany where I worked, the labs often compete with the universities – that was my experience.

Leroy (Audience): There should be a bit more focus on getting industry in and facilitating the connection with students coming out who can stop the problem.

ML: My suggestion is that we don't just have internships for students. We should have internships for senior people.

SR: I have a question for the audience: What does industry believe would be the most helpful product that the SMC society could provide them with? ... And what I'm trying to do is keep this discussion more or less on track so that we can report back specific suggestions to improve mainly our journals, but indeed our conferences and magazines to obtain that greater level of industrial participation.

Khoshgoftaar (Audience): You can ask industry, "What are the most important topics that you are working on right now?"

Ortega (Audience): I would like to have a list of possible common points of interest in industry, and I mean to work together, and I don't know if you have time.

Fathi (Audience): As my experience in Germany and a couple of years here in the U.S., I think the industry should work with us; otherwise, it is a big gap in the industry and the academy as before.

SR: Rather than us delimiting the set of topics in the scope of what we should be doing, perhaps we should send out emails to industry and thus better ascertain what topics are currently of interest and needed by them. We need to get fixes that Larry can put in to effect, rather soon to improve our marketability, if you will. Also, maybe we should make the technical correspondence papers sort of a separate entity written at the level of – and

you can read it quickly – sort of like a magazine that speaks to issues of interest that are addressed in technical detail of a magazine, but doesn't seem to be a weak paper.

GL: Maybe the IEEE SMC can take the lead in forming a panel of people from say, NSF, some people in industry and academia to address the feasibility of forming something like maybe a Computech, something that is similar to what's happening in Germany – some entity that can help industry as well as universities and government.

JM: Maybe we could look at another ailment that's overlooked and that's the humanitarian engineering work that can be done by our society and which could get some government money perhaps.

WG: I think IEEE's mission statement addresses that as one of the major points to be addressed; that is, servicing humanity. Also, I must say that I believe that the Technical Correspondence is often thought of as a constellation prize. That's not always the case. There are definitely exceptions to that. But, there would be room to look at ways to modify the format. I note that about 30 percent of our SMC members are from industry as I recall. However, at IEEE, there are a large number, something like 40 percent of IEEE, some large number of the membership. They don't have any societal affiliation. That's mind boggling.

ML: It may be that there's no time for industry to go through the very rigorous process of review for a peer journal. Also, I've seen articles from Unigraphics and other corporations, which were extremely long – something like 150 pages – and tremendously informative and very, very clever, and showed the enormous experience of the authors as a result of us working in an industry and dealing with real problems every single hour of the day. I found the papers absolutely fascinating. There wasn't a single paper by an academic in this volume. It was all industrial paperwork. So maybe we're just not offering the opportunity to publish in the only way their able to – given their time constraints. So perhaps something that IEEE could organize is some kind of electronote volumes or something like that. Most of the papers in this volume that I read were those, but they were very thought provoking and scientifically valuable papers.

MJ: I think that one aspect that we haven't really talked about is how we actually work together.

Zadeh (Audience): Many of you are not old enough to remember the cold war. But, at that time the government spent much, much more money on basic research than it does today. Companies were getting money from the government to do research. There was a much, much greater degree of interest in basic research at that time. I think we disagree with my good friend ML with regard to this situation in Europe. I think that when I go to various countries, France, Germany, most of them, Italy in particular, and I asked them – asked if the government is supporting your research to a greater extent or lesser extent than in the past. And in almost every case, the answer is lower. Budgets are cut 20 percent in the IEEE. For research in universities budgets are cut in France, and even in Germany budgets are cut. So for all problems, we have to look not into Western Europe,

but to Asia. If you go to Asia, you go to Japan, Korea, and China, you see government intervention. That's what you see in South Korea, and that is why you see this remarkable progress that South Korea has made in recent years. ... Unfortunately, from my point of view, there isn't another one in the United States. There is just this traditional sort of mistrust of government intervention, and this is what is hurting us. It's amazing, you see this new campus in Nobuko, Japan, beautiful buildings, various Universities, all kinds of things. Government intervention. So this is something that we have to remember. And also let me give you just one quick example: When I started my academic career, Lord knows how many years ago, you sent the proposals to the International Science Foundation asking for \$20,000, which today would be the equivalent of \$200,000 or more with probability of 0.95, you have that money. If not NSF, all of them were looking like my good friend, SR: The Navy was very, very generous in support of basic research. So, in the absence of an enemy, we have to – I think the government has to step in and say that what we have to do is something that is not being done today. We are completely occupied; whereas with commercialism, we have short-range horizons. These are the criteria of which research is being done in one case after another in industry research laboratories, which have been shut down; and, you may not remember RC Laboratories, major – Ford, General Motors Research Center, all of them, U.S. Steel – big laboratories. Big laboratories were doing a lot of basic research; and then, of course, that, of course, was reflected in the number of papers that were submitted to journalists. Today we do not have that kind of situation.

ML: It is private money that's doing a lot of this funding.

SR: When I was a graduate student, I remember that the money we earned doing research was not taxable. And I have known people I guess a generation older than me who used to work at McDonnell Douglas, and they had so much research money, they didn't know what to do! Now, it's like Professor Zadeh was saying, we don't see that many research companies. Maybe in the final analysis, the IEEE will need to develop a congressional research lobby – the problem may be more of a societal nature.

MS: ...The really professional writers publish a lot of papers in their careers, much more than people in industry. And this is generally designed for very strict academic standards.

SR: If you can work to modify the standards for tenure and promotion to give better recognition to development work, then you indirectly encourage the formation of industrial liaisons, since shared goals will evolve.

Kanoyan (Audience): I'm from General Motors research. One of the things that my management is pushing me as a researcher to do is cooperate with academia, or getting more involved within the research groups within the university. For example, I was an industrial fellow at UC Berkeley and we are highly involved in giving problems to the students and working together with the students and professors because it is a very productive kind of environment where technology was worked on with the students.

Vybornova (Audience): Coming from Europe and the USSR, I'm a little bit surprised when there was a discussion here that local government would fund European countries. But, the fact is that the local government of Italy, Germany, or France actually don't have to do it, the procedure in Europe is a bit different. The European commission plays the role of the unified government for the whole European government, for all the countries, which are involved in Europe. ... Several academic research partners and several industrialist partners should be involved in a single project. ... And there is big money. It's good funding and that is why people are very interested in participation in these projects.

Gregoire (Audience): I live in France and came to IRI from there. In France, the national landmark also forms basic research. Fortunately for resident in France, there's been the creation of a new national research urgency funding that basic research, which is now re-creating what's more in France. That's good news.

Luo (Audience): I'm from the Chinese Camp of Science. This is my first time attending this conference, so I have comments for the conference. In terms of the science and engineering, they have two tracks. It is fantastic to focus on the high problem and the science focuses on the wide problem.

SC: It may be that SMC will take the ball and enable the development of university and industry collaboration as is our goal.

THE OPEN SESSION CONCLUDED AT 5:34 PM ON MONDAY, AUGUST 13, 2007.  
THE CLOSED SESSION OPENED AT 3:38 PM ON TUESDAY, AUGUST 14, 2007.

SR: Let me just set the tone now for the formal part. At this point, we'd like to take what we discovered yesterday as a brainstorming session and filter through the pragmatics of what we can achieve now to increase industrial sponsorship and funding of our journals and our conferences, and perhaps other areas to come up with good ideas so that we can end today with some specific recommendations that can be realized – let's say within one year.

MS: The idea to have a technical correspondence from the industry written by authors in the industry is a good one. I'd like to implement the industry in a general academic sense because academic is secondary to our papers, but technical correspondence by the industry wouldn't have that image at all. So I think industrial-technical correspondence fits a need we can do, and it would be valuable information to publish.

SC: We should include more associate editors in industry because if we have the technical abundance – industry, then we will have industry people out to review it, to handle these paper reviews.

WG: The magazine is really something that intrigues me. I understand the constraints in terms of financial backing for it. But, I think the magazine actually might be a better way to involve industry contributions rather than trying to sandwich it into the transactions. I

think you're going to have some arguments from the editors, but it's certainly worth a try. It's certainly worth a try. This approach has been successful in the Control Systems Society, the Robotics Automation Society, as well as in the Computer Society.

SR: What is the cost to bring that on line and return on the investment?

WG: I've talked with the past editor of the Robotics Nomination Magazine and it's somewhere around \$150,000. \$100,000 to \$150,000 a year to run it. They are getting about a third of that right now from advertisements, so it's not cheap. It also takes an editor, an editorial assistant who is a technical writer... You might have to pay a salary to a technical writer / managing editor.

MM: I suggest the idea of joint industry – academic workshops.

JM: I would add something to that. I would make it a joint corporate and academic talk because some of the keynote speakers we had in this conference were excellent. There were very, very good keynote speeches. In order for them not to turn into marketing things and/or marketing situations, you need to balance it out- academics and industrialists.

DY: I think one of the suggestions we've been hearing, not only from this group, but in our SMC support discussion is to really strengthen the road of the technical committees. In other words, we would like our technical committee to become the driving force for our conferences, as well as continue the journals, and it can take care of some of the ideas that we promote as well. So I suggest that we try to really set up technical groups or strengthen our current existing technical groups that will involve more industrial people. Perhaps you can think of industry sectors, like defense or aerospace and then try to support those industries.

MM: Exactly.

WG: Our technical committees, at least in SMC, tend to emphasize writing papers, special issues, conferences, and workshops – particularly at the main conference and that's about it. I'd like to see technical committees having a project and that project could involve industry participation – like a small consortium of five to ten people say. It can be funded internally, like a lot of us do in our universities, to get something going.

MS: I think lawyers would get very upset with that because funding is going on with nonprofit organizations. It's a liability.

WG: We have to find out how to do it properly.

MS: It's relatively easy to add technical correspondence from industry. It's something that's easily doable. And that would tilt it – the pages towards more on industry papers and pages in our journals and less academic papers. That's an easy change to do.

...

SR: Do we want to consider including in our SMC vision statement adopting the philosophy of disseminating what we consider to be key information, key articles (i.e., republishing), etc?

WG: Could someone read the vision statement so we have it?

MS: The problem with trying to define or redefine the scope of the transactions is that you don't know what the main researcher is going to be 30 or 40 years from now.

WG: It depends on the field of interest or scope of the journals?

MS: No.

WG: Larry has already started limiting the scope.

SR: Maybe what we're saying is that he does a good job to limit the scope, but would it be good to consult a steering committee comprised of industrial participants?

WG: Absolutely. ... If there are associate editors that are not coming from industry, then we might have a problem. That's an excellent idea.

MS: One thing we need do is to have stronger industrial advisory boards for the journals.

MM: Exactly.

WG: Sure. It's really hard to get industry people. But, not just for the journals – also for the conferences, the technical activities, all three of those business groups.

SR: ... Take a minute and think about it. Is there anything else we missed?

MS: Well, you mentioned yesterday about publishing information about patents to be included.

WG: Absolutely.

...

SR: Is there a specific recommendation that you could come up with for using the Internet to attract industrial interest?

JM: I think what we could do is advertise industrial activities on our sites...

SR: It doesn't cost you any thing for our program committee to get one-third as well as the journal reviewers who write down recommended by – to be from an industry – an

industry that is recommending the articles and I am more likely to read; otherwise, it's another academic.

JM: That's a very good idea. I think SR is thinking of it like marketing – that's a good way. That's a very good way.

WG: How would that be implemented?

SR: The associate editor selects a reviewer and when that reviewer approves it, that reviewer has been in that same industry – let's say John Doe from Motorola or Microsoft has recommended this article.

MM: How do you think to find the reviewer?

SR: Through networking.

WG: Well, it's worth trying. I don't know.

SR: And the program for me is important enough – if you enlist on the program committees, I try to make it up at least one-third of the members from industry – that will still go over into the journals when we publish the articles of conferences and journals – that will help us get reviewers. It's a snowball effect. But the idea is try to make an effort in that direction. It's only good for some of it.

JM: I would agree with that.

WG: It's worth trying.

SR: A lot of people in the industry – I know people in government that would be able to review very high quality technical articles. So it doesn't mean worded down magazines.

MM: Let's do it.

SR: It's a no-risk, no-cost solution that has a no-loss potential and only a gain potential. So, I think it's reasonably good. We're not at a point where we're losing academic contact. And I mean, we're talking a maximum of one-third, 50/50 is the majority, so we have no problem with it.

WG: And it will attract money, which is what the purpose of this meeting is about. So I think we all can agree right now on that one. That's a good idea.

SR: I suggest keeping the technical correspondence as is. We can add two sections – one for academics and one for industrialists as a point of technical letters or an open forum where they discuss ideas and things.

MS: I propose just a section for industry.

...

SR: OK. We leave the technical correspondence in and have a separate section just for open forum. We can include industry and patent news in it.

...

SR: ...So do we want to allow for republishing or reprinting or articles both from IEEE and possibly outside sources of copyright? Everybody seems to think that's OK? On a limited basis. Maybe like the most – we are not talking a large number, but that was for industry involvement. Agreed? Anybody disagree? No? So it's unanimous.

...

JM: OK. Well, the motion is, establish a link between industry Websites such as Mentor Graphics and Intel, two examples, and I have the contact information where they are trying to recruit a professional network of engineers through their industry Website for discussion on the product, link that with the SMC on an industry Web page for SMC.

SR: OK. Let's take a vote on that.

MS: Is that other site a for-profit site?

WG: Yes.

MS: Do they charge a fee?

MM: No, they don't charge. No.

JM: No, no. Mentor Graphics and Intel not for profit, no, no, no.

MM: It's a social network.

JM: It's a professional network for not profit, no cost.

SR: Let's take the vote. All those who are in favor? Ten.

THE CLOSED SESSION CLOSED AT 5:24 PM ON TUESDAY, AUGUST 14, 2007.