Editorial by Nitish Thakor

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Dear authors and readers

It is my great pleasure and honor to take over as the Editor in Chief (EIC) of *Medical and Biological Engineering and Computing* (MBEC) Journal. I follow in the fine foot steps of Dr. Jos A. E. Spaan who led the journal very capably over the past several years (also assisted by Ruben Coronel and many other distinguished Associate Editors). Indeed, the journal is where it is, thanks to the contribution of and volunteered effort by the editorial board.

It is my pleasure to introduce the editorial management team, including Dr. Anil Maybhat, Dr. David Sherman and Rezina Siddique. These three team members will assist me in all aspects of managing the journal, including assignments, review and triage management, and facilitating the publication process. We will be greatly assisted and supported by Springer, including the Editorial Manager, Mr. Christoph Baumann. We also look forward to working with the Springer staff including Ms. Claudia Kehl and Ms. Anjali Ratnajit.

I take this opportunity to also thank the leadership of International Federation of Medical and Biological Engineering, including its President, Dr. Ratko Magjarević. I also thank the members of the search committee, including Dr. David Holder who provided valuable assistance to get me started as the incoming EIC.

MBEC has a proud tradition—as fully detailed by Dr. Magjarević. It is one of the top 20 journals in the field

of Biomedical/Bioengineering based on citation metrics. This does not tell the whole story. MBEC is one of the most diversified and comprehensive journals in the field. It provides a broad coverage of the topics in all physiological systems. The journal also spans a wide technological range, from micro/nanosystems to large scale instrumentation. MBEC sets itself apart from other peer journals by explicitly considering and publishing articles that are largely ignored by various wholly computational disciplines. This representation is truly remarkable, to cover biomedical sciences, technology and computational aspects, and not matched by any other journal in the field.

Still, we can do better. Our journal has a long way to go to be the very best in the field and has to change with the times.

First and foremost, what is on all readers and authors' minds is the quality of the papers published and, in essence, citations and the impact factor. Certainly, maintaining high quality is essential, and the quality of publications may be measured by citations. Quality may also be measured by the lasting value and impact on the field made by the novel technology or the computational model. Such research takes time to disseminate and subsequently get accepted by the research community and furthermore cited. Technical material does not land itself to rapid review and acceptance as well. The size of the research community in a particular field may also not be as large, and the tradition to cite many papers may also be a factor. For these, and many other reasons, engineering journals, by and large do not carry as high an impact factor as most biological or medical journals. That simply is the fact and reality. Nevertheless, we must forge ahead and work hard to improve the selectivity and the quality of the articles published and assure their citation and broad dissemination. Our highest priority, therefore, will be to improve the quality and promote the

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impact of the journal on the field. We will look for both *current value and longevity*. Classically, articles in the field of biomedical engineering have enjoyed a long half-life (a longer period over which the articles are cited). Now, we will assure that they have a high immediate interest as well. That is, we will look for articles that are of high current interest; for example, cutting edge technology that may find immediate clinical or research applications. We hope that this emphasis on *immediacy* will result in early citations, and as a result, a rise in the impact factor will follow.

A related issue, dear to the hearts of all authors, is the speed of review, i.e. how quickly their papers are reviewed and the final decision is rendered. This is something our editorial staff can facilitate, but we will also need help from the editorial board and the reviewer community. We have streamlined the review process so that our editorial management staff will pick up lot of the work associated with the handling of the manuscripts, from their initial acceptance or triage to assigning reviewers to transmission to publisher. By removing many intermediate steps, we will speed up the review process. Further, we will triage manuscripts very quickly based on a number of objective criteria, from the style and formatting issues to the content that is not up to the journal's standards. We will expand the editorial board to render a critical opinion quickly. The associate editors will not be unduly burdened with the manuscript management and will be called upon to provide the expert opinion, advice to the authors and give the final recommendation. This will not only reduce the editors' work load but also enhance their response and quality of decisions.

Next, I want to address where this journal is headed. I should accept that the journal will head where you, the authors and readers will take it. The scientific fields and topics, hot areas and applications, all change with time. Novel technologies, theories, experiments and applications cannot be planned or predetermined. That said, the journal must embrace important emerging fields rapidly to keep up with the changing pace of science and technology. We will reach out with the help of an expanded editorial board into emerging topics and frontiers. These will be developed continually, but it is clear that in certain areas we must make a greater impact.

- MBEC must extend into the molecular and cellular biological sciences, as great breakthroughs and discoveries seem to occur at the smallest, reductionist scales. On the computational side, the journal will need to expand its scope into building models of genes and proteins and subcellular processes. MBEC needs to keep up with the explosive growth in the field of cell and tissue engineering. Indeed, this field spans the biological and medical areas, as the discoveries made

in vitro are taken rapidly in vivo in animal models and then are beginning to find their way into clinical applications. Thus, our journal may facilitate and be the first to report such developments and applications.

- MBEC should also recognize the technologies that are small and large. There is no question that micro and nanotechnologies have undergone explosive developments and advances. These technologies have also influenced how cellular and subcellular manipulations can be made or how they may be used to make fundamental discoveries. Thus, we will reach out and invite contributions in the field of micro and nanotechnologies. Indeed, this is just one facet: we will explore all emerging technologies (for example, robotic surgery, multimodality imaging technologies, brain machine interfaces, etc.) through special issues.
- All too often technologies or discoveries remain in the laboratory. They do not easily disseminate to the application areas; in our field that implies clinical translation. MBEC will be very receptive to applied clinical technologies, translational research and reporting of clinical applications based on rigorously done investigations. That does not mean we will report clinical trials, but we will invite the authors to present articles that report clinically applicable technologies or quantitative data analysis. Our hope is that this will broaden our readership and engage clinical scientists or enhance partnership with the clinical researchers and practitioners.
- It is evident from the articles received and published that certain areas are over-represented and others are under-represented. Plenty of cardiovascular and biomechanics articles can be found in the journal. Signal processing and conventional modeling articles are common as well. At the same time, some strongly emerging fields such as neural engineering and brain machine interface have not been well represented. Thus, we will selectively promote fields where there is evident excitement, seen through highly publicized research, interest at international meetings and highly cited papers.

These are just a few but certainly not all of our priorities. To reiterate, the journal is open to all fields and ideas. Hot areas and priorities will change. Authors and the review process will dictate how and where the journal heads.

Procedurally, new topics and themes will be developed through special issues. Authors and readers are invited to propose "Special Issues." We will invite at least one special theme topic every quarter. This will allow us to promote four or more themes each year. We hope that such a proactive effort will take the journal towards new and emerging fields and directions.

I want to touch on the inexorable trend towards online publishing and viewing of articles. Printed journals are expensive and are approaching a diminishing rate of return—both economically and practically. Other emerging trend that may very well grow is towards *open source* publication of scientific work. This is at the moment a costly endeavor for authors but beneficial in that this approach seems to accelerate the speed of publication and there is some evidence that it may promote access, readership and even citations.

Lastly, I want to pursue one topic that is dear to my heart—to recognize excellence. I will set up mechanisms to reward papers of the highest quality. This will require a high quality peer review mechanism, of course. We will explore, with help of the editorial and advisory board, the best approaches: among the ideas under consideration are rewarding the highly cited papers receiving most citations over the past 2 and 5 years and setting up best-paper awards at affiliated conferences. Another award we hope to institute is for the young investigators—students and post-doctoral fellows or academic researchers in the first few

years of their career. We hope that these awards will in turn increase awareness and interest, as well as the loyalty for our journal.

To conclude, I am excited to take up the mantle of the Editor in Chief of MBEC. I am very appreciative of the fine work done by the previous and the reviewers. I am also appreciative of the current editorial board and looking forward to reaching out and engaging new members. We will do our best to improve and speed up the review process and strategically work to improve the quality and resulting citations and impact of the journal. We will actively expand into emerging fields, invite special issues, and reward highly cited works and high quality works, especially by students and young investigators.

I want to express my great appreciation for the International Federation of Medical and Biological Engineering for selecting me as the Editor in Chief of MBEC. I am looking forward to the exciting work that lies ahead and the opportunity to work with all the authors, reviewers and editors to make a credible continuing impression in the world of Biomedical Engineering.