A Year in Retrospect

Since this is the last "President's Message" of my tenure, I have chosen to make it retrospective in nature. I would like to highlight some major actions the IEEE Control Systems Society (CSS) has undertaken over the past 12 months and return to some of the themes that were discussed in earlier columns.

The most significant Society effort launched in 2012 was a proposal to establish a new journal with the name *IEEE Transactions on Control of Network Systems* (*TCNS*). Given the competitive nature of scientific publishing and the rigorous process that IEEE uses to evaluate new journal proposals, this has been a significant undertaking. At the time this column was written, our proposal for the new journal had received preliminary IEEE approval, and a more detailed proposal was being prepared for a final go-ahead that would allow us to launch it in 2013. Our 2012 Vice President for Publication Activities Frank Doyle deserves a lot of credit for leading this effort on behalf of the CSS. It is noteworthy that since 1993 (when *IEEE Transactions on Control Systems Technology* was launched) our Society has not attempted to establish any new journals within IEEE.

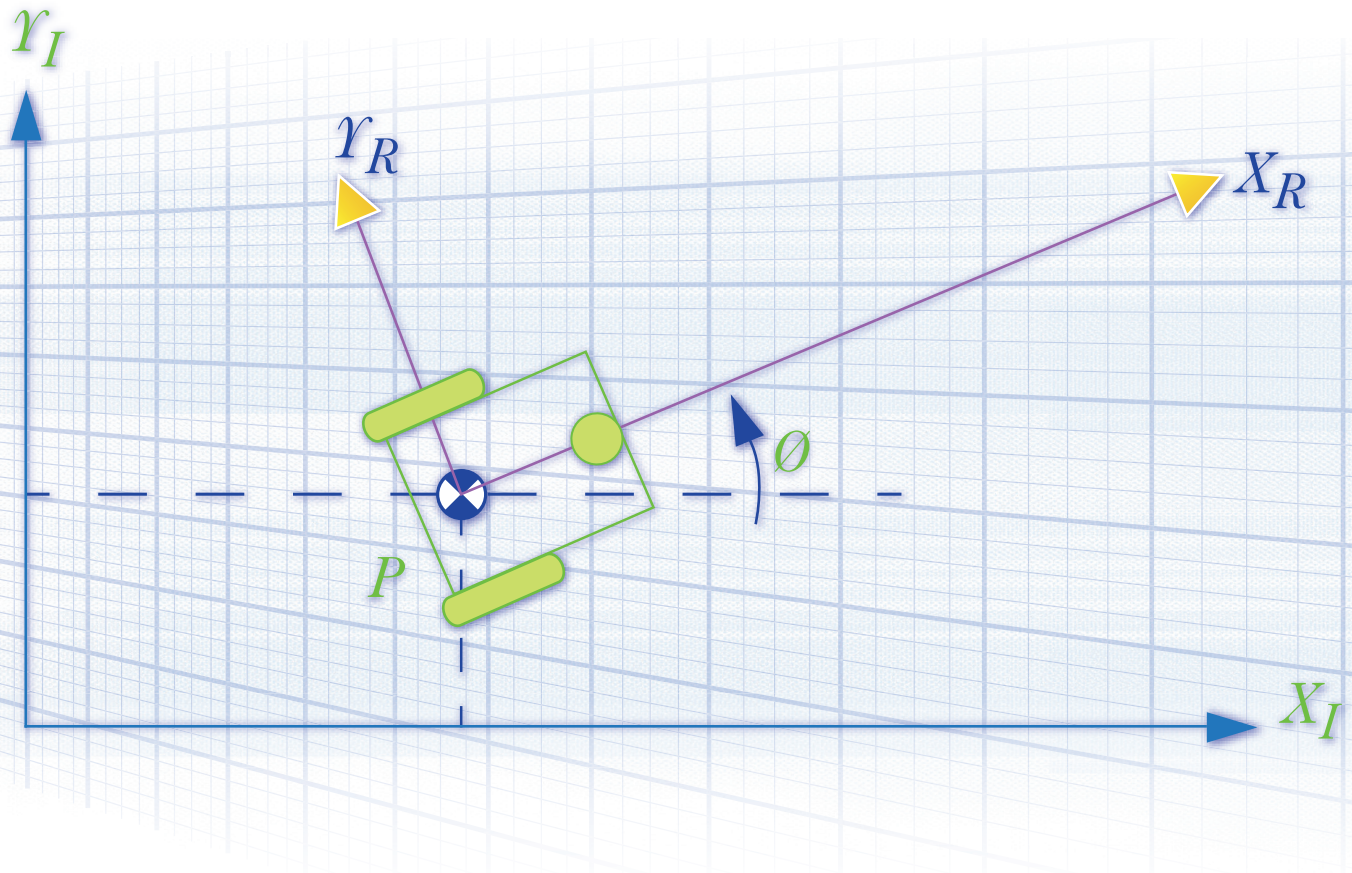I would like to share with you the main motivating factors leading to the proposal for *TCNS*. Our community has for some time now been very actively involved in the analysis and control of dynamic systems with a network structure or whose operation is supported by networks (e.g., for sensing, feedback, and actuating). Yet this activity is not appropriately represented in a distinct publication forum, and the impact of this research has been substantially diminished by forcing us to submit relevant articles into alternative publications. Our data clearly show that there are numerous articles on networks systems in our flagship journal, *IEEE Transactions on Automatic Control* (*TAC*); however, their contribution to this specific technical area is either lost or unappreciated because *TAC* publishes articles largely driven by the broad methodological approaches that come under the heading of "control theory." Authors reporting research results specifically on network systems still submit their articles to *TAC* since they lack a different venue targeting
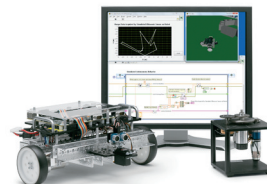

CSS President-Elect Yutaka Yamamoto and 2012 President Christos Cassandras during a meeting in Kyoto, Japan.

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> **The most significant Society effort launched in 2012 was a proposal to establish a new journal with the name *IEEE Transactions on Control of Network Systems* (*TCNS*).**

these systems. This very fact is evidence of the growth in an area within our field that specifically studies control-theoretic aspects of networks as dynamic systems. Moreover, systems that we call "networks" are no longer limited to application domains such as computers, communications, or manufacturing—there are now social networks, energy networks, or metabolic networks in biology, all dynamic systems with their own unique modeling, analysis, and control challenges.

Finally, on a more practical note, we have experienced an ever-growing submission rate to both of our existing transactions, thus making it difficult to maintain a high quality of reviewing and editing for such a large volume of articles. The expectation is that by breaking this volume up through the creation of *TCNS*, this new journal will absorb a significant fraction and we can address this quality problem as well.

Our effort to expand the scope of our research activities through a new publication is also related to my February "President's Message" titled "A Healthy Identity Crisis" in which I advocated a broadening of the scope of our field. I have since received several positive responses to this call from our membership at large, and I feel, more than ever, that this is indeed the right direction to pursue. Viewing "networks" as dynamic systems and studying their role not only as a control component of some system, but rather as the subject of overall system

design and analysis, is one of the ways I see the broadening of this scope taking place.

Another challenging effort launched in 2012 has been the establishment of a CSS Committee on Ethical Violations in Publishing. This effort has been motivated by an observed increase in the number of incidents that involve violations of professional ethics in our journals and conferences.

By far the most common of these violations is best described as "multiple submitted articles by one author (or group of authors) with substantially overlapping material." This topic was also discussed in some detail in my August message titled "Plagiarism and Other Sins." As also mentioned in that message, the CSS has relied on software that scans every submitted article and looks for similarities with documents available in a large database of published work, including articles submitted to the same venue. However, the results of this software-based screening alone are inadequate and the charge of the aforementioned committee has been to not only identify offenders but also to ensure that every author is protected against false allegations. Frank Doyle also discusses this new process and its implications in this issue.

The first opportunity we have had to test the process has been for the 2012 IEEE Conference on Decision and Control (CDC). The results were encouraging in that only a rela-

tively small number of submissions to the CDC have required any form of "action" while several incidents of suspected or potential violations were properly detected so that appropriate feedback was supplied to associated authors. Nonetheless, this first-time experience also gave us the opportunity to identify some weaknesses in the process and has reinforced the importance of carefully filtering the output of its software-based component. Moreover, as also pointed out in Frank Doyle's column, it became clear that we need to provide additional guidance to the members of our community regarding what is acceptable "reuse" of previously published material in either conference proceedings or journals. Indeed, guidelines on this very issue are now available at the CSS Web site.

In closing, I would like to say that this has been a most unusual year for me as I tried to maintain a balance between my research activities and professional obligations on one hand and the duties of the CSS president on the other. It has helped me come to the realization that the governance of our Society is not only an essential and demanding aspect of its overall mission, but it relies on the skills and extraordinary dedication of a relatively small number of volunteers who form its Executive Committee and others who support a number of committees around it. I am grateful to these talented individuals for working with me and for epitomizing the "volunteer spirit" necessary to not only sustain the CSS but, more importantly, ensure that it always looks towards the future, ready to adapt, change, and define new expanding scientific and technological roles for itself.

Christos G. Cassandras