

## End-of-Year Summary

The latest news has *IEEE Control Systems Magazine (CSM)* in great shape, with, at the time of this writing (July), over 40 feature, applications of control, and focus on education submissions this calendar year, which is about the same as 2015. The latest impact factor result (2.193) is up slightly from 2015 (2.088), and the five-year impact factor remains strong at 3.222. Furthermore, the recent high demand on publication volume has led to the approval for a slight increase (about 8%) in *CSM's* total page count in 2016, which will continue into 2017.

*CSM* continues to have a very strong team of associate editors and editorial staff, and I greatly appreciate all of their hard work. Recent departures from the team include Jorge Cortes, Kristin Pettersen, and Murti Salapaka, who have all been very helpful. In 2016 we welcomed five new associate editors: Warren Dixon, J. Sean Humbert, Daniel Quevedo, Simona Sacone, and Yildiray Yildiz (detailed introductions are on page 13 of this issue). As discussed in August 2016 [1], if there are any students interested in helping with a “Student Chapter” column for *CSM*, they should send me an application.

The *CSM* author guide [2] and LaTeX style files [3] have been updated and streamlined. Authors are strongly encouraged to review the materials provided to confirm that potential submissions are well suited for *CSM* and appropriately written/formatted.

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This past year saw the publication of two parts of a special issue on distributed control and estimation of robotic vehicle networks, and I would like to thank the guest editors (Jorge Cortes, Sonia Martinez Diaz, and Nisar Ahmed) for their efforts in shepherding those articles through the system. Two additional special issues are nearing completion, one on the merging of game theory and control theory, and the second on estimation in nonlinear systems. These will appear in early 2017. Another two

special issues are in the early stages of the review process, one on high-assurance control and the second on blood-glucose regulation with artificial pancreas systems.

Special issues, and their accompanying introduction written by the guest editors, provide a unique opportunity to present a wide range of perspectives and results, which can be of significant value to the community. Thus, additional special issues are strongly encouraged. Topics that I think would be of particular interest include biomedical and health-care applications of control, control system design for the Internet of Things, and industrial applications of control.

The five-year review of the IEEE Control Systems Society (CCS) publications by the IEEE Periodicals Review and Advisory Committee (PRAC) was also held in 2016. That review required each editor-in-chief to compile a significant amount of data about his/her publication over the past five years. For *CSM*, the data indicates that the submission volume (60–70 articles per year) and overall acceptance rate (approximately 30–35%) has been steady since 2013. The effort was led by Fabrizio Dabbene (CSS vice-president, Publications), who deserves a lot of praise for



Jonathan How and Francesco Bullo enjoy a beautiful waterfall while observing the Rock Art at Helan Mountain near Yinchuan, China (image courtesy of Jun Wang).

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his efforts in generating an excellent report. The feedback so far praised several CSS practices that the PRAC wants to share as best practices across other IEEE Societies.

One comment from the reviewers was that the backlog of some CSS journals is very high, with the recommendation that this be addressed. As such, at the CSS Board of Governors meeting in July 2016, a one-time increase in the page count for *IEEE Transactions on Automatic Control* was approved to clear the backlog. Although time consuming, the PRAC process was valuable for the insights that it provided to me on the best practices used by the other CSS editors-in-chief. However, future editors-in-chief of CSS journals are recommended to plan ahead for 2021!

Although I believe that CSM is in good shape, there are things that could be improved, so I have the following suggestions and requests. For example, I think it would be good if more tutorial papers could be published, similar to the article “Tutorial Overview of Model Predictive Control” [4]. What makes a good tutorial? The article should provide a concise statement of the overall problem, identify the important challenges in the area, present basic algorithms/solutions that are helpful for a novice in the field to understand the main issues, and discuss/assess the more advanced solutions that provide insights for experts.

A good tutorial should also identify top papers in the field that provide further details on the results and algorithms and highlight the open technical issues that remain to be addressed. Tutorials could also provide access to additional resources, such as on-



Jonathan How waiting for the bike ferry in Menemsha, Massachusetts, during his annual tour of Martha’s Vineyard after submitting the December CSM issue.

line software and data repositories. In summary, a good tutorial should provide nonexperts with the depth and breadth necessary to get started in a new area and experts a means to stay current with recent developments.

I also think there would be interest in new developments and “lessons learned” from our colleagues in industry, who form a large part of the CSS community. Articles or special issues from industrial and academic partnerships that explain the issues associated with a particular *theory-practice gap* would be particularly attractive and provide an important service to the community.

More “Focus on Education” articles are also desired. For example, I have included a short note in this issue [5] that discusses a simple idea that can have a large impact on the performance of dynamic output feedback controllers and, thus, might be of value to students and researchers alike. The material is from my course notes; it is covered in some textbooks (for example, [6]), but not all, and, even so, this material is typically not

covered in course material, possibly leading to poor results in practice without knowing why. The write-up in [5] was meant to be a short note, and I would welcome similar discussions of insights that others have developed from their teaching or experiences in industry.

CSM is the publication for the CSS community, so a major goal is to continue to increase its use as a mechanism to raise awareness of all the activities in the control field through the “Publications” and “Member Activities” columns. Kirsten Morris (CSS vice-president, Technical Activities) has done an excellent job of increasing the number of discussions of the work being done by the technical committees, and Josh Isom (CSM associate editor) has done great work obtaining the reports from the various conferences and workshops that are supported or technically cosponsored by the CSS. If readers are aware of other control-related events, workshops, news, or technical committee meetings that you think others would be interested in, then please e-mail me the information (jhow@mit.edu).

I have enjoyed my second year so far and look forward to seeing your submissions in 2017.

## REFERENCES

- [1] J. P. How, “IEEE Control Systems Society enrollment [from the editor],” in *IEEE Control Syst. Mag.*, vol. 36, no. 4, pp. 3–5, Aug. 2016.
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