## Conference Presentations

I asked myself, "What is the optimal length of a conference presentation?" on the flight back from Rome, where I had just attended the 2015 Robotics: Science and Systems (RSS) Conference. Obviously, the answer depends on many factors, including from whose perspective the question is being asked and the objective function that is being considered. That said, my hunch is that the answer is not the 20-min talks that are currently given at the American Control Conference (ACC) and the Conference on Decision and Control.

The previous IEEE Control Systems Society (CSS) president, Elena Valcher, in one of her "President's Message" columns, discussed that conferences are about research, including listening to talks, networking, including meeting colleagues (new and old), and, of course, socializing [1]. The talks are not the sole purpose of the trips, and thus they should be designed to be as informative and entertaining as possible.

This editorial discussion is not meant as a criticism of the hard work done in organizing these conferences, but after seeing many of them, 20-min talks seem too long to achieve the main objectives of both the speaker (convey main contributions and increase an audience's awareness and interest in the results) and the audience (become educated on new ideas/approaches/results). In my opinion, there is nothing sacrosanct about the current 20-min presentation format, and better, well-tested alternatives exist.

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For example, the International Conference on Robotics and Automation (ICRA) recently switched to a format in which all papers are interactive [2]—including 3 min of a spotlight presentation followed by an interactive poster session. The spotlight talk provides the speaker with an opportunity to give a well-focused talk that hits all the highlights and attracts the attention of audience members who might otherwise not have been interested. These are important skills to develop, since it is often useful to be able to give a strong "elevator pitch" on your work. The interactive session also gives ample time for the speaker to provide further detailed information that is of interest to some members of the audience. In my experience, these interactions around a poster are typically much more insightful than listening to a longer presentation, asking a short question in the question and answer period at the end, and then trying to read the paper. Of course, an interested individual could follow up with the speaker in the current format, but more people tend to follow up with questions at a poster following a spotlight talk. Again, in my experience, these follow-ups also tend to focus more on clarifications of aspects of the work that aren't understood, which is

typically more useful for all involved than just a canned speech.

Short spotlight talks also enable audience members to see more talks in a given time period, increasing the exposure to material that might not normally be seen and making it easier to explore fields outside one's main area of interest. There is also a lower impact on the time cost of seeing a poorly done short presentation than a long one.

RSS, admittedly a much smaller conference, also uses short (5 min, with four to seven talks per session) and long (20 min, one per session) talk formats, with both having a joint poster session that follows the presentations. Even though these interactive sessions were quite long, the conversations around each poster were very animated, and the format provides the audience with an excellent opportunity to quickly learn about a broad array of research results and then discuss the ideas directly with the author in front of the poster. Five minutes is a good length for a spotlight talk, and RSS is unique in that the time limit is strictly enforced by requiring that each short talk be given as the sound track to a movie of the slide presentation. Because these movies must be submitted before the conference, experience

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has shown that they tend to be well made, and the accompanying presentations are practiced and given well.

Another large conference (Neural Information Processing Systems) I attend has sessions of both long and short spotlight talks, followed in the afternoon by a large interactive poster session, in one large hall, for all papers presented that day. While typically very crowded, I recall these sessions as being the highlights of the conference, with many long discussions with authors about various key aspects of the results that were of interest to me and others in the "huddle." When com-bined with refreshments, these extended sessions provide ample opportunity to dig deeply into the results, browse new areas, socialize with colleagues, and make new friends.

Given these past experiences, and taking into consideration my dual roles as presenter and audience member, I think that the optimal length of a conference presentation is a 5-min spotlight talk done in a session of five to six papers followed by a 60-min interactive session.

Interactive sessions were tried at the ACC in 2007–2009 [3], but that presentation format is no longer used. A lot has changed in the way that information is distributed and obtained since then, and recent experiences at other conferences has shown that the spotlight talks with interactive poster format can work well. As such, I recommend that these types of sessions be considered for future control conferences. Do you agree? It would be excellent to hear the opinions of readers of *IEEE Control Systems Magazine* on this subject.

## REFERENCES

[1] M. E. Valcher, "The value of conferences [President's Message]," *IEEE Control Syst.* vol. 35, no. 4, pp. 10–11, Aug. 2015.
[2] IEEE Conference on Robotics and Automation. (2015, Nov. 30) [Online]. Available: http://icra2015.org/
[3] T. Samad. (2015, Oct. 10). Technical program overview. [Online]. Available: http://ieeexplore.ieee.org/stamp/stamp.jsp?arnumber=4586448

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## Classical Relay Control and Hybrid Systems

The operation of the invention is as follows: The expansion of [the] helix, being composed of two thicknesses of metal of different expansibility, with the more expansible metal on the inside in contact with the pipe and the outside metal subjected to the cooler external atmosphere, will tend to straighten or unwind upon the increase of temperature in the pipe, and, being held fast in position at the bottom end, said helix will cause the lever, secured to its upper end, to describe some arc of a circle for a given rise in temperature of the pipe, and thus close the dampers, a reduction in temperature in the pipe causing the reverse operation. Thus, if the rooms to be heated are at too low a temperature and the fire requires to be kept burning freely, the return water will descend to the pipe at a minimum temperature and the dampers will remain open so long as the low temperature of the return water continues. If the rooms become too hot, the radiators will not part with so much heat, and their returning water, through [the] pipe, will be hotter and cause the dampers to close.

— John T. Hawkins
*Automatic Temperature Regulator*,
U.S. Patent #378,248, February 1888