

# Report to the IEEE Control Systems Society Outreach Program Indian Control Conference, Hyderabad, January 4 – 6, 2016

Submitted by  
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## Introduction

The Second Indian Control Conference was held during January 4 – 6, 2016 on the campus of the Mahindra École Centrale (MEC) in Hyderabad. The first ICC was held during January 5 – 7, 2015 on the campus of the Indian Institute of Technology Madras. The Outreach Program of the IEEE Control Systems Society made a generous award of \$9,000 to support student participation in ICC2016. This report gives details of how the funds were utilized.

## Statistics About ICC2016

ICC2016 received both technical co-sponsorship and proceedings acquisition from the IEEE CSS, which was much appreciated. Thus, for the first time, the Proceedings would become a part of IEEE Xplore. A total of 140 papers were submitted to the ICC. Full papers were submitted, and reviewing of papers was handled through Papercept. Strict standards were enforced, whereby a paper was accepted only if it received a rating of at least C from all reviewers and the Associate Editor. Despite these standards (which were higher than in 2015), a total of 84 papers were accepted, perhaps indicating that the quality of papers had improved. Five accepted papers were withdrawn by authors with intimation to the organizers, and the remaining 79 papers were uploaded. All of these papers were presented, and there weren't any "no shows."



Figure 1. Prof. Richard Murray receiving a memento after his plenary talk

## Sponsorships

ICC2016 received Gold Sponsorships from Mathworks and Honeywell, and Silver Sponsorships from ABB R&D and General Electric. The sponsorship amounts together covered the travel of the plenary speakers, namely: Richard Murray of Caltech, Daniel Liberzon of Illinois, and Manindra Agrawal of the Indian Institute of Technology Kanpur. The fourth plenary speaker, Raffaello D'Andrea of ETH Zurich, could not travel due to a last-minute family situation; so he delivered his plenary lecture via video. In addition to the above financial sponsors, two local educational institutions, namely Indian Institute of Technology Hyderabad and MEC, were also recognized as Gold Sponsors for their support in kind.



Figure 2. Prof. Daniel Liberzon giving his plenary lecture in a typically Indian *kurta*

## Student Support Program

Based on some experience gained last year, students chosen to receive support were required to pay the full student registration fee of Indian Rupees (Rs.) 4,500, or roughly \$70, and then get reimbursed. In addition, out of town participants were also reimbursed train fare up to a maximum of Rs. 3,000. However, students from far-off places were paid air fare. Because the MEC campus is a little remote, even “local” students were provided hostel accommodation on the MEC campus, as were the out of town students. This system of requiring students to register beforehand paid dividends, in that only three students who were chosen for the support did not attend, all three due to valid health reasons; thus there were no “no shows,” as against five in ICC2015. (All three were reimbursed the registration fee despite their inability to attend in person.)

## Statistics About the Support Program

A total of 72 students were selected for support under the SSP. This total can be broken down in various ways, as shown below:

- 64 were Ph.D students, six were Master's and two were undergraduates.
- 54 students were from out of town, while 18 were local. All students were given free registration and free accommodation on the MEC campus. In addition, out of town students were also given travel support.
- 30 students were authors, 8 had submitted papers that were not accepted, and 34 had not submitted a paper.
- Out of the 30 authors, 23 were from “elite” institutions (the IITs and the IISc) and 7 were not.
- Out of the 42 non-authors, 32 were from “elite” institutions and 10 were not.

These figures are encouraging because one of the objectives of the SSP is to enable students from “non-elite” institutions to submit papers that can withstand a high-quality review process.



Figure 3. The three Best Student Paper finalists. From left to right: Dr. Sanjay Bhatt, Chair, Best Student Paper Committee, Burook Misganaw (UT Dallas), Anoop Jain (Indian Institute of Science, Bangalore), Parijat Bhowmick (Indian Institute of Technology Kharagpur), and Prof. Richard Murray, who graciously handed out the prizes. Burook Misganaw was the overall winner.

### Other Statistics

In addition to the 72 students supported under the SSP, another 12 participated on their own (meaning that they were paid by their home institution). All of these were from “elite” institutions. In addition to the 84 student participants, there were 47 academics and 15 from industry, for a total



registration of 146 participants.



Figure 4. A group photo of the participants at the Indian Control Conference 2016.

## **Budget**

The grant of \$9,000 from the CSS Outreach Fund got converted to Rs. 595,800. Out of this, the 72 registrations amounted to Rs. 324,000, travel support amounted to Rs. 159,163, and accommodation cost Rs. 65,320. Therefore the total expenses against the SSP were Rs. 548,483, leaving a surplus of Rs. 47,317, or less than 8% of the total amount. It is difficult to plan more precisely, given the uncertainties in the number of successful applicants and their geographic distribution. Had we exhausted the SSP amount, we would have dipped into the general revenues to fund student participation.

## **Lessons Learnt**

After the experience of the initial ICC in 2015, things went very smoothly in 2016. The procedure of requiring students selected to receive support to pay the registration up-front and get reimbursed achieved the desired objective of eliminating no-shows. (The three persons who did not attend after having registered all had valid health reasons.) Because ICC2017 will be held in Guwahati, in the far Northeastern corner of India, almost all students would have to be paid air fare. If we hope to support student participation at the same levels (68 in 2015, 72 in 2016), we would have to find additional sources of funds.

One innovation that we propose to try out for ICC 2017 is to ask all applicants for the travel support program to send a brief abstract of their research. Authors could submit the same abstract as their submission, while non-authors would have to create an abstract. This would have two consequences. First, there would be some additional information on the quality of the applicants, thus leading to better decision-making. Second, it is proposed to invite all non-authors selected for travel support to prepare a poster. In this way, the non-authors would also feel that they have participated. We will see how this works out next year.

## Conclusion

The organizers are enormously grateful to the CSS Outreach Fund for the generous support of \$9,000, which facilitated the participation of 72 students. Having so many students in attendance gave a very youthful and energetic air to the ICC.



Figure 5. Food is never in short supply at Indian conferences!