



Figure 1: A banner showing the sponsors hung among the bamboos on the campus of IIT Madras

**Final Report to the IEEE CSS Outreach Fund:
Financial Assistance in Organizing the
Indian Control Conference During January 5-7, 2015**

1 Preamble

The Indian Control Conference (ICC) was held for the first time during January 5-7, 2015, on the campus of the Indian Institute of Technology, Madras. It is intended to be an annual event, with the venue rotating around India. The conference was technically co-sponsored by the IEEE Control Systems Society, and received financial support from various local industries. In addition, ICC 2015 also received \$9,000 from the Outreach Fund to support the registration, travel, and accommodation of student participants. This report provides some details about the conference as well as the details about the utilization of the Outreach Fund Award. Further details can be found at icc.org.in/2015.

2 About ICC 2015

ICC 2015 received 175 submissions, out of which 90 were accepted following the reviewing procedures used by CSS conferences. The acceptance rate of just 52% is evidence of the rigorous standards that were applied. Out of the 90 accepted papers, 85 were uploaded into the Proceedings. So far as the organizers were able to determine, there was not even one “no-show” among



Figure 2: Professor Soura Dasgupta delivering his tutorial

these 85 papers.

The first day of the conference, namely Monday January 5th, was dedicated to four tutorials, as follows:

- **Morning Session**

- **Prof. Soura Dasgupta, University of Iowa**, “Control of multi-agent systems: Theory, architecture and applications”
- **Prof. Arun K. Tangirala, Indian Institute of Technology, Madras**, “Data-Driven Multiscale Analysis”

- **Afternoon Session**

- **Prof. Mathukumalli Vidyasagar, University of Texas at Dallas**, “Recent Advances in Compressed Sensing”
- **Prof. S. N. Balakrishnan, Shiv Nadar University and Prof. S. Jagannathan, Missouri University of Science and Technology**, “Adaptive Neural Network based Control: Challenges, Future Directions, and Applications”

The tutorials were included in the registration. The two sets of tutorials were attended by roughly 120 to 140 persons, with the audience being split nearly equally between the two parallel sessions.



Figure 3: Professor Bhaskar Ramamurthi, Director of IIT Madras, inaugurating the conference

The next two days witnessed the main conference, which was attended by exactly 180 registrants. Out of these, 97 were students, many of them supported by the Outreach Fund (more details below). There were two plenary talks, one on each day.

- **Tuesday, January 6:** Prof Qingchang Zhong University of Sheffield, “Distributed Control of Next-Generation Smart Grids with Many Players”
- **Wednesday, January 7:** Prof Francis J Doyle III UC Santa Barbara, “Personalizing the Artificial Pancreas for the Outpatient Setting”

3 Utilization of CSS Outreach Fund

The CSS Outreach Fund gave a generous grant of \$9,000 to cover the registration, travel, and accommodation of up to 60 students to participate in ICC 2015. Using the prevailing exchange rate of USD (US Dollar) 1 = INR (Indian Rupees) 60, the application envisaged a grant of INR 540,000, or INR 9,000 per student. The student registration fee for ICC 2015 was INR 3,000. The plan was to offer return train fare to students except for those from the far Northeastern corner of India, from which train travel is not practicable. In addition, all students were to be accommodated in various “service apartments” around the IIT Madras campus, or on campus.

In actuality, due to a slight exchange rate fluctuation, the grant of \$9,000 got converted into INR 552,690. The call for applications resulted in an overwhelming response – 475 applications, the bulk of them from Bachelor’s students. So a policy decision was taken that a B.Tech. student



Figure 4: Professor Qingchang Zhong delivering his plenary lecture



Figure 5: Professor Francis J. Doyle III receiving a memento from the General Chair, Professor M. Vidyasagar, after delivering his plenary lecture



Figure 6: Food is never in short supply at conferences held in India

would be considered for the award only if s/he is an author. However, for Master's and doctoral students no such restriction was applied.

Another point overlooked by the organizers was that many of the applicants were from Chennai, which is the fourth largest city in India. Therefore they would require only free registration, and would not require travel nor accommodation. This freed up some money. Accordingly, from the applications, a total of 68 awards were made.¹ These 68 awardees could be grouped in several different ways.

- Out of the 68 awardees, 54 were from outside Chennai, while the remaining 14 were locals.
- Out of the 68 awardees, 22 were authors of orally presented papers (some of whom also had poster presentations), 3 had only poster papers, 11 were “submitters” who had submitted papers that were not accepted, while the remaining 32 did not submit a paper.
- Out of the 68 awardees, 59 were Ph.D. students, 5 were M.Tech. students, one was an M.S. student (less course work and more research compared to an M.Tech.), and 3 were B.Tech. students.

Once the ICC started, and students started turning in their receipts, it was realized that there eight no-shows out of the 54 out of town awardees. Also, the travel budget was underutilized as was the accommodation, because the local organizers managed to spend less than INR 3000 per

¹In the material supporting the Outreach Fund application for ICC 2016, this figure is erroneously mentioned as 67.



Figure 7: The three finalists of the Best Student Paper Award receiving their prizes from Professor Ashok Jhunjunwala of IIT Madras

student. In view of this, a decision was taken to permit some “walk-on” awardees who were locally based and were given only free registration. There were ten of these: 5 Ph.D., 4 M.S., and 1 M.Tech. This raised the total number of awardees to 78, and the breakdown became 64 Ph.D., 6 M.Tech., 5 M.S., and 3 B.Tech. The total expenditure, as shown in the attached spreadsheet, was INR 523,915, resulting in a surplus of INR 28,775. The expenses under the three heads was:

- Registrations: INR 234,000 (78 times 3,000)
- Travel: 158,255
- Accommodation: 131,660

4 Lessons Learnt

The organizers believe that on the whole the utilization of the Outreach Fund met its objectives. The total number of Ph.D. students supported was 64, which is a substantial number for a developing country. The fact that there were three B.Tech. students who had accepted papers in ICC was also encouraging. Out of the 8 out of town no-shows, two had informed the organizers ahead of time and had valid reasons (e.g. ill health), but six simply failed to show. Therefore for ICC 2016 it is proposed to ask the students to pay a small sum, such as INR 500, so that they incur a financial penalty if they do not show. (It must be mentioned that if someone booked his/her travel and failed to travel at the last minute, then they would essentially forfeit their fare; so that too is a penalty.) Aside from this, the program did not have any obvious weaknesses.

The objective of the organizers in setting the registration fees for ICC 2015 was to ensure that the fixed costs of hosting the event would be met from the full registrations and sponsorships, while the student registration fee would cover the variable cost. In other words, the finances of the event would be unaffected by the actual number of student registrants. In the event, the organizers had underestimated the variable cost. Consequently, the more students participated, the greater the loss on that account. Fortunately there were enough other sources of revenue to cover this loss. Nevertheless, for ICC 2016 it was decided to raise the registration fee to INR 4,500 for students.

In conclusion, the organizers once again thank the IEEE CSS for its generous grant under the Outreach Fund Program, and look forward to continued support for future Indian Control Conferences.



Figure 8: Group photo of some of the participants