

# Analysis of the Impact of the Broader Engagement Program on the SC Conference

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## 1 Introduction

The Broader Engagement (BE) Program is a subprogram of the SC Conference, for which the goal is to increase the participation of individuals who have been traditionally underrepresented in HPC. The BE program offers special activities to introduce, engage and support a diverse community in the conference and in HPC. Participants are chosen based upon a competitive application process. Each participant is provided limited travel support, lodging, and participation in the BE program and in some cases the Technical Program. This report analyzes the degree to which the BE participants have become engaged in the SC technical program and major committees. The report utilizes data from the following sources covering the period of 2007 through 2012:

- Linklings, for data related to BE applications, BE participants, SC submissions/acceptances, and SC committees
- Conference registration data

It is noted that the data related to workshop submissions and acceptances is not included in the report at this time. Workshops submission are independent of the SC conference and are done individually. We are attempting to get some information about workshop acceptances during the time period of 2007 through 2012.

The data results are presented in four major sections:

- BE applications and participants (Section 2)
- BE participant engagement in the Technical Program (Section 3)
- BE participant engagement with the major committees (Section 4)
- Conference registration of BE participants (Section 5)

Below is a summary of some key findings:

- More than half ( $\approx 59\%$ ) of the BE participants have at least one submission to the SC program. Approximately 38% of the BE participants have an accepted submission. The paper and poster submissions make up the majority of the BE submissions and acceptances. Posters make up 40% of the accepted submissions and papers make up 20% of the accepted submissions.
- Most of the accepted paper submissions occur after participation in the BE program.
- The average paper acceptance rate (over the five year period) for BE participants is slightly less than that for SC. With respect to posters, the BE participants have a slightly higher average than SC.

- With respect to committees, only 8.21% of the BE participants have served on at least one committee. Of the BE participants who have served on at least one committee, only 27.5% have served on a Technical Program Committee.

## 2 Broader Engagement Applicants and Participants

Applications to the BE program were given one of the following decisions:

1. Accept,
2. Reject,
3. Possibly Accept, and
4. Possibly Reject.

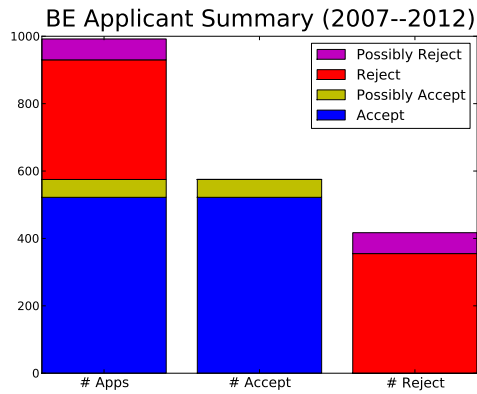
Because exact records on who actually participated in the BE program each year were not available, we have made the simplifying assumption that only the *accepted* applicants comprised the participants in the program. Applicants that were marked with *reject*, *possibly reject*, and *possibly accept* did not participate in the program. Although assuming that applicants that were *possibly accepted* or *possibly reject* did not participate may lead to some inaccuracies, the number of applicants in these categories is small compared to the number of applicants that fell into the accept and reject decision categories (see Table 1 and Figure 1).

Table 1 presents application data broken down by year. There were a total of 877 applications to the BE program from 2007–2012. The largest number of applications were submitted in 2011, but the largest number of accepted applications occurred in 2010. Figure 1a summarizes the total number of applications as a bar graph; the percentages are given in Figure 1b. The applicants in the *possibly accept* category comprised only 5.3% of the total applicants.

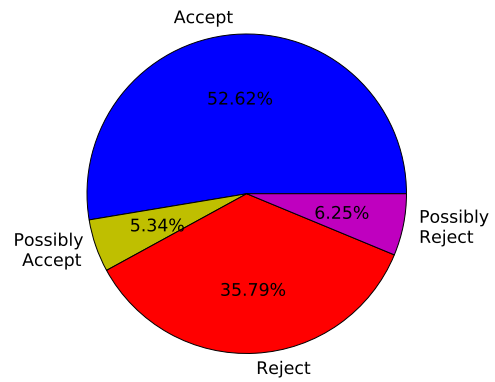
Figure 2a provides the bar graph representation of the numbers of *accept* and *reject* applicants per year. The *possibly accept* and *possibly reject* applicant numbers are omitted from this analysis. Figure 2b provides the corresponding acceptance rates by year. Notice that the acceptance rates vary significantly from year to year, with 2010 having the highest acceptance rate and 2011 having the lowest acceptance rate.

Table 1: BE Applicant Data

Description	2007	2008	2009	2010	2011	2012	Total
# Applications	85	118	163	148	228	135	877
# Accepted Applications	54	84	104	127	93	60	522
# Possibly Accepted Applications	0	0	2	4	47	0	53
# Rejected Applications	31	34	59	21	135	75	355
# Possibly Rejected Applications	0	0	3	0	59	0	62

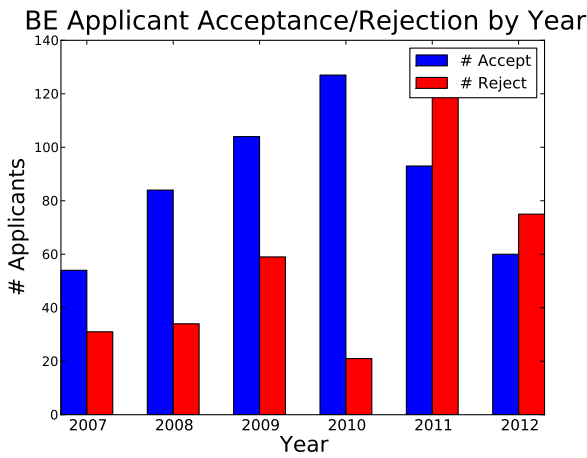


(a)

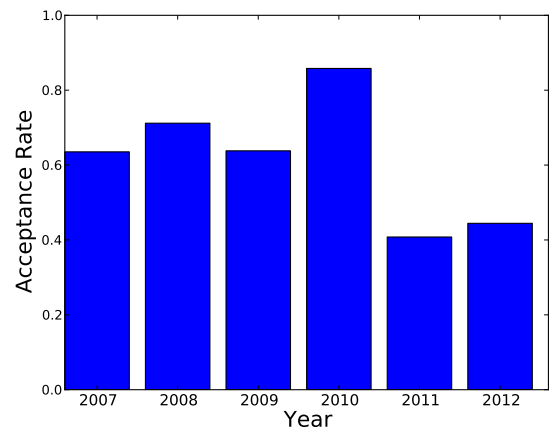


(b)

Figure 1: Summary of BE applicant data for 2007–2012. (a) Shows the total counts and (b) shows the proportions.



(a)



(b)

Figure 2: (a) The number of *accept* (blue) and *reject* (red) applicants by year. (b) Acceptance rates of BE applicants by year.

### 3 BE Participant Engagement in the SC Technical Programs

We examined submissions made by BE participants to the following SC programs:

1. Birds of a Feather,
2. Student Cluster Competition/Challenge (which we will refer to as “Cluster”),
3. Doctoral Research Showcase,
4. Exhibitor Forum,
5. Panels,
6. Papers,
7. Posters, and
8. Workshops.

Table 2 provides the number of submissions made by BE participants by year for each of the aforementioned categories. Because some submissions did not have a clear decision associated with them, any decision categories that did not contain the word ‘accept’ were considered rejections.

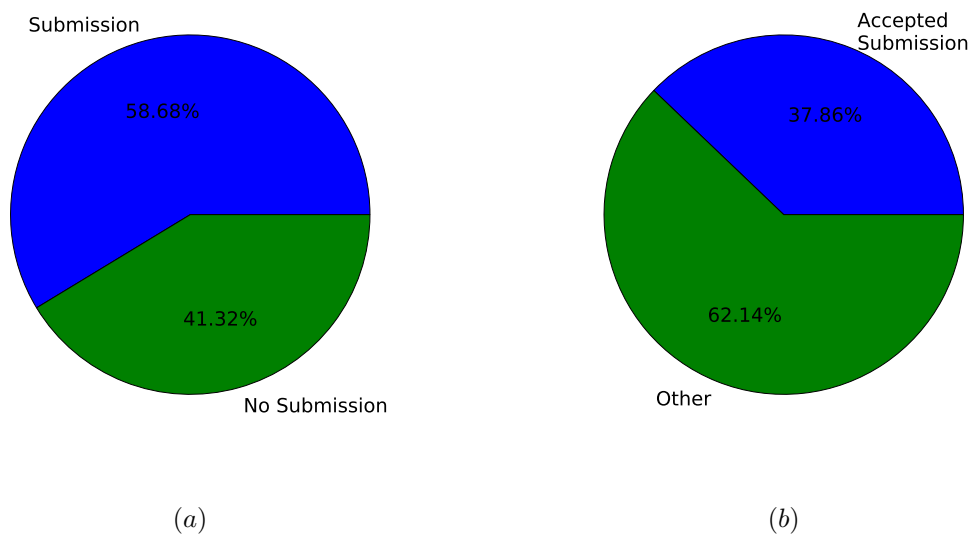


Figure 3: (a) Proportion of BE participants who have made at least one submission to SC. (b) Proportion of BE participants with at least one accepted submission.

Figure 3a provides the proportion of BE participants with at least one submission. More than half ( $\approx 59\%$ ) of the BE participants have at least one submission to the SC program. Figure 3b indicates that approximately 38% of the BE participants have an accepted submission.

Figure 4 provides the number of submissions by BE participants each year from 2007–2012. There is an expected trend that the number of submissions by past BE participants is increasing each year. This is expected as the number of past BE participants increases each year. Figure 5 provides the proportion of submissions by category for 2007–2012. The submissions within each year are further broken down to show the number of submissions to different categories. The paper and poster submissions make up the majority of BE submissions during most years.

Table 2: BE Submission Data by Year (2007–2012)

<b>Description</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>Total</b>
Overall							
# Submissions	23	25	17	35	49	61	210
# Accepted	9	7	10	12	13	24	75
# Rejected	14	18	7	23	36	37	135
Birds of a Feather							
# Submissions	1	0	0	1	0	5	7
# Accepted	0	0	0	1	0	4	5
# Rejected	1	0	0	0	0	1	2
Cluster							
# Submissions	1	0	1	5	4	0	11
# Accepted	1	0	1	2	1	0	5
# Rejected	0	0	0	3	3	0	6
Doctoral Showcase							
# Submissions	2	5	2	1	3	15	28
# Accepted	2	3	1	0	1	6	13
# Rejected	0	2	1	1	2	9	15
Exhibitor Forum							
# Submissions	1	0	0	0	0	1	2
# Accepted	1	0	0	0	0	1	2
# Rejected	0	0	0	0	0	0	0
Panel							
# Submissions	1	0	1	2	0	0	4
# Accepted	1	0	1	1	0	0	3
# Rejected	0	0	0	1	0	0	1
Paper							
# Submissions	9	8	10	11	19	18	75
# Accepted	1	0	4	1	3	7	16
# Rejected	8	8	6	10	16	11	59
Poster							
# Submissions	8	12	3	14	23	20	80
# Accepted	3	4	3	6	8	6	30
# Rejected	5	8	0	8	15	14	50
Workshop							
# Submissions	0	0	0	1	0	2	3
# Accepted	0	0	0	1	0	0	1
# Rejected	0	0	0	0	0	2	2

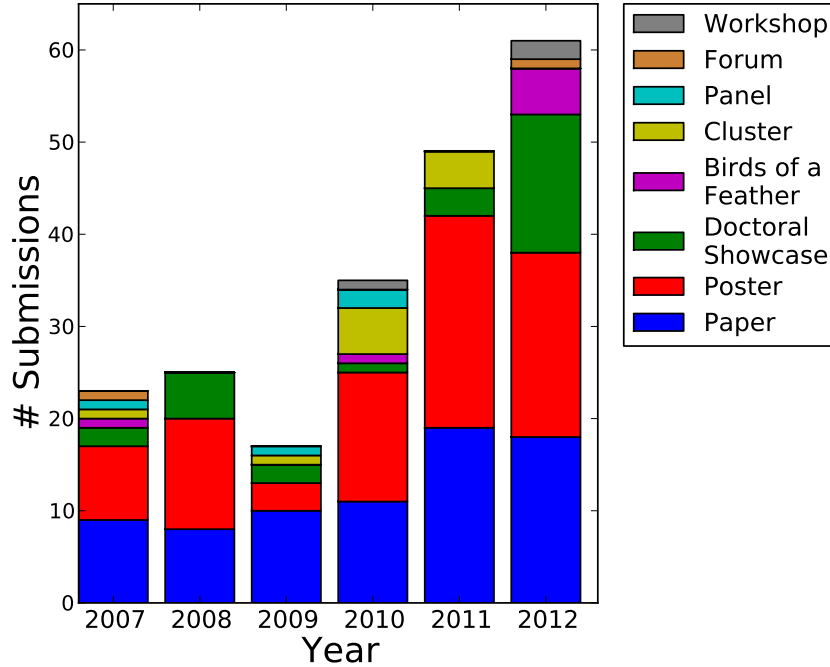


Figure 4: The number of submissions by BE participants each year.

Figure 6 provides the number of accepted submissions by BE participants from 2007–2012. The trend is similar to the trend in Figure 4. The number of accepted submissions by BE participants is increasing as more people participate in the BE program. Figure 7 is the analog of Figure 5 showing the proportion of accepted submissions broken down by category. Posters make up 40% of the accepted submissions, followed by papers that make up 20%.

Figure 8a provides the number of accepted and rejected papers by BE participants broken down by year. We used the color green to indicate the number of accepted papers with authors who were not yet BE participants. Only a small number of BE participants have an accepted paper at SC a year or more before they participate in the BE program. The acceptance rates for papers are shown in Figure 8b. We computed acceptance rates over just the submissions by BE participants and compared them with the paper acceptance rates for SC. The BE participant paper acceptance rates are slightly lower than the general SC paper acceptance rates.

Figure 9a provides the number of accepted and rejected posters by BE participants broken down by year. Again, we used the color green to indicate the number of accepted posters with authors who were not yet BE participants. A significant number of BE participants have an accepted poster at SC a year or more before they participated in the BE program. The acceptance rates for posters are shown in Figure 9b. For posters the average acceptance rate for just BE submitted posters is slightly higher than the general SC poster acceptance rate.

Figure 10 provides the percentage of BE participants who have had an accepted paper or poster at least one year before actually participating in the BE program. This is the case for only a small percentage in any given BE program year.

Figure 11 shows the Doctoral Research Showcase acceptance rates for BE participants. This plot indicates that recently, the acceptance rates for BE participants with the Doctoral Research Showcase is approximately 40%. Further analysis is needed, however, to calculate the percentage in terms of student BE participants

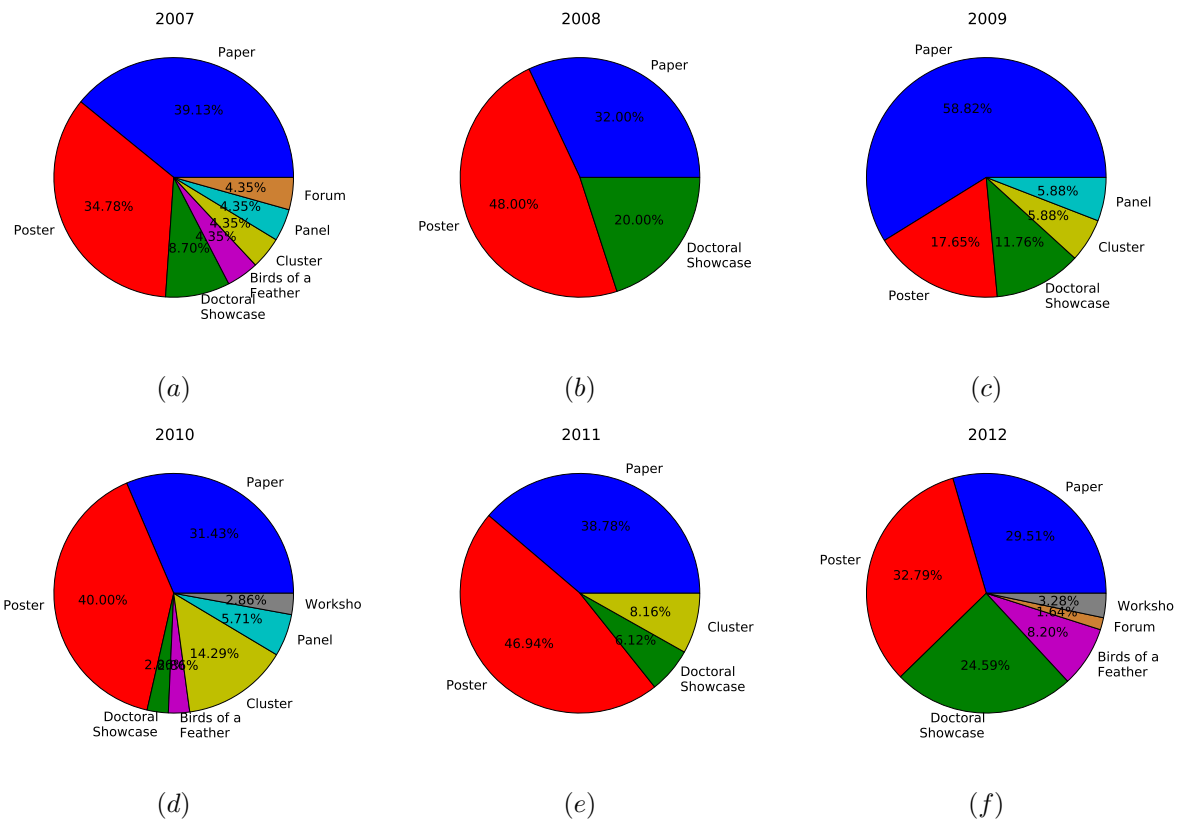


Figure 5: Of the BE participants that have submissions, this shows the proportion of submissions broken down by category for (a) 2007, (b) 2008, (c) 2009, (d) 2010, (e) 2011, and (f) 2012.

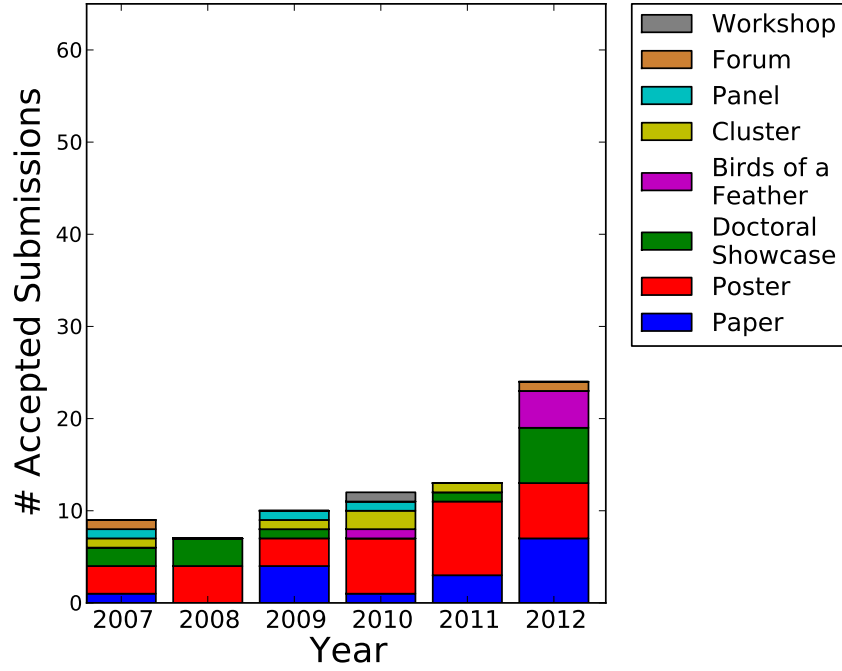


Figure 6: The number of accepted submissions by BE participants each year.

only. The problem, however, is that we do not have the breakdown by faculty/PhD Student/Undergraduate to be able to identify those for which the Doctoral Research Showcase is appropriate. Hence the percentage given is for all BE participants, which represents a lower bound.



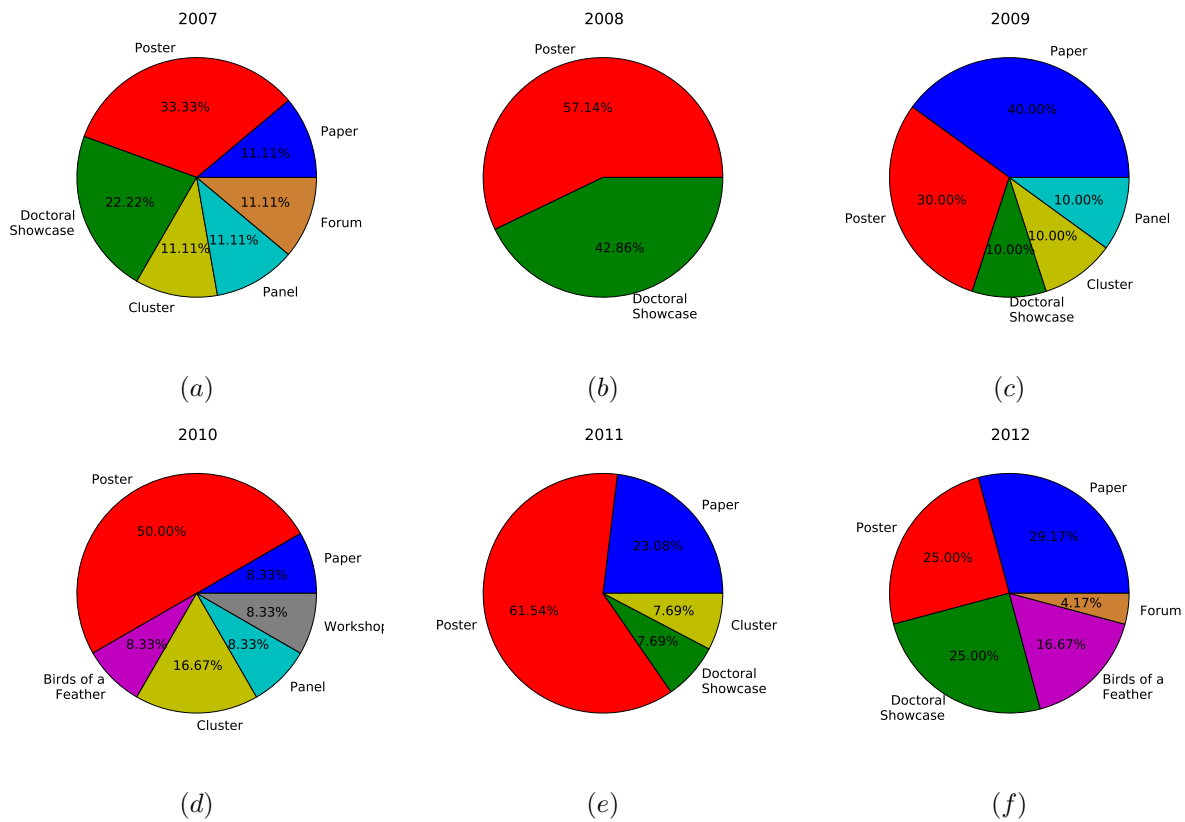


Figure 7: Of the BE participants with accepted submissions, this shows the proportion of accepted submissions broken down by category for (a) 2007, (b) 2008, (c) 2009, (d) 2010, (e) 2011, and (f) 2012.

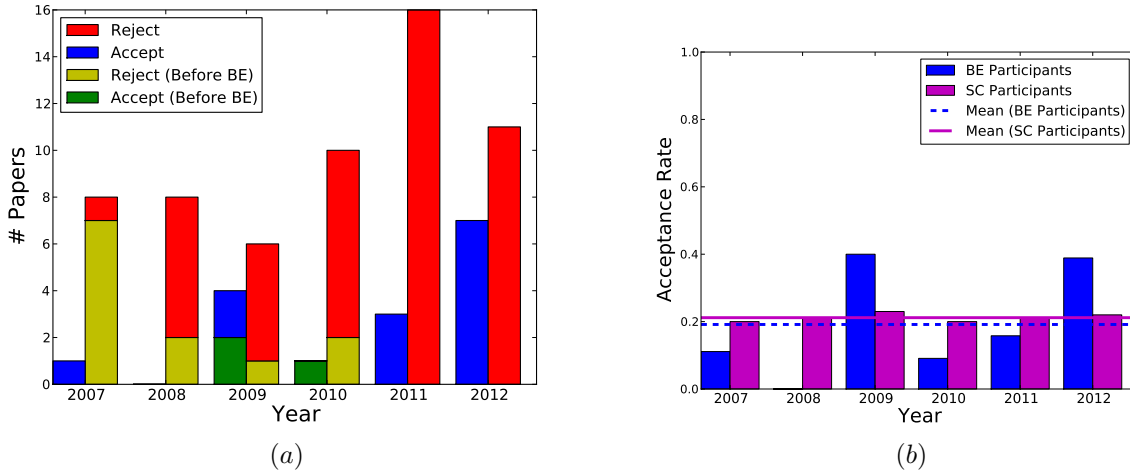


Figure 8: (a) The number of papers submitted by BE participants that were accepted (blue + green) and rejected (red + yellow) during 2007–2012. The green and yellow bars corresponds to the number of accepts and rejects, respectively, by authors who have yet to be BE participants. (b) Paper acceptance rates of BE participants by year. Solid line represents the average acceptance rate from 2007–2012 for SC participants, and the dashed line represents the average acceptance rate from 2007–2012 over BE participants only.

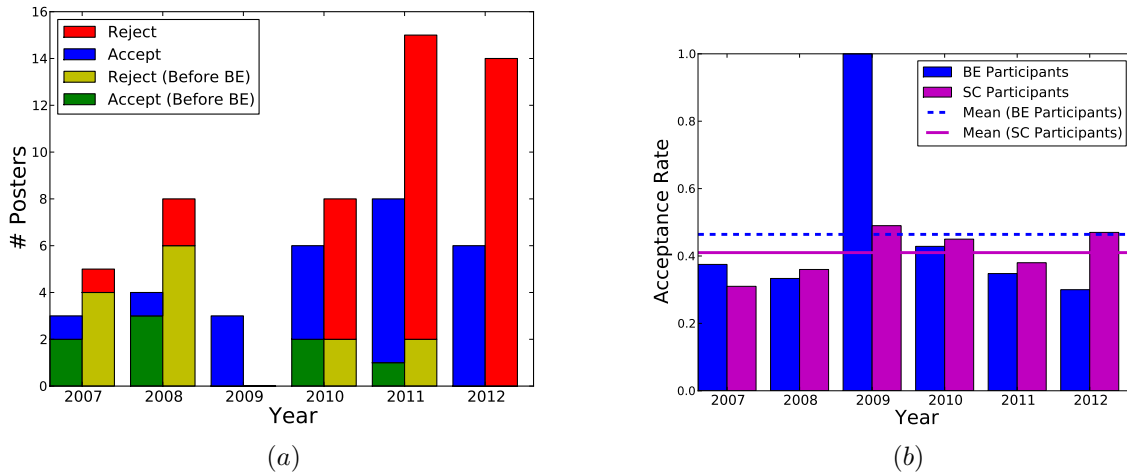


Figure 9: (a) The number of posters submitted by BE participants that were accepted (blue + green) and rejected (red + yellow) during 2007–2012. The green and yellow bars corresponds to the number of accepts and rejects, respectively, by authors who have yet to be BE participants. (b) Poster acceptance rates of BE participants by year. Solid line represents the average acceptance rate from 2007–2012 for SC participants, and the dashed line represents the average acceptance rate from 2007–2012 over BE participants only.

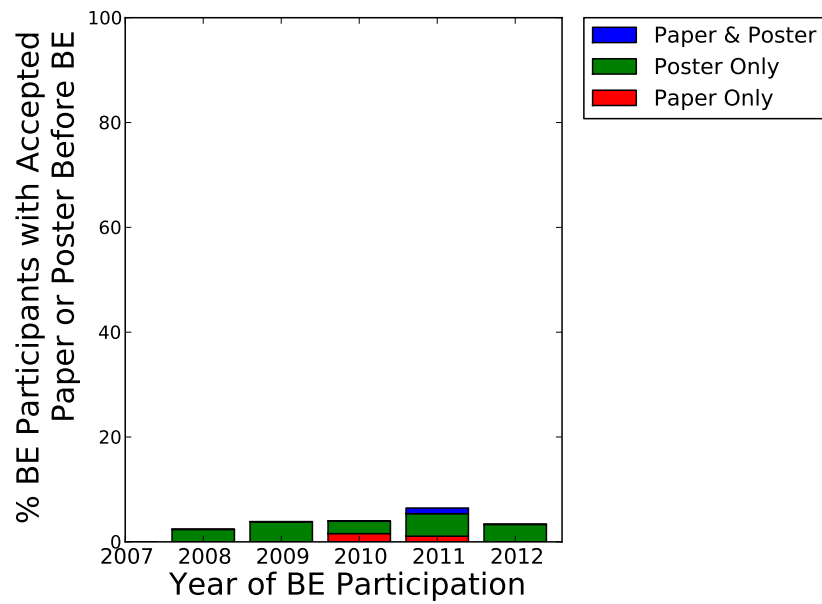


Figure 10: Percentage of BE participants with an accepted paper, poster, or both paper and poster at least one year before participating in BE.

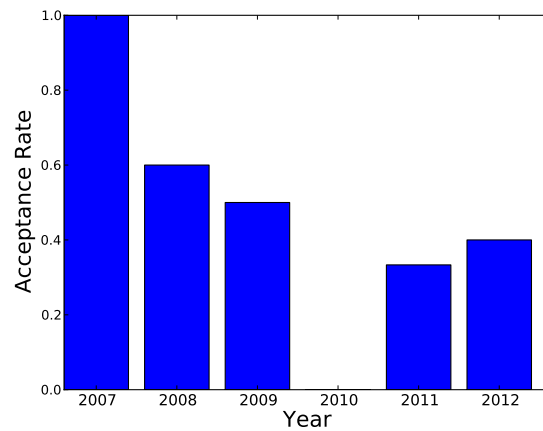


Figure 11: Acceptance rates for the Doctoral Research Showcase by BE participants per year.

## 4 Service on SC Committees by BE Participants

The data given in this section focuses on the participation of BE participants on SC Committees. The data given in Table 3 identifies the total number of members of each committee who have participated in the BE program over the five year period. The corresponding numbers by year are given in Table 4. It should be noted that for data given in these two tables, a particular BE participant may be counted multiple times if he/she has served on the given committee for multiple years. The data given in Table 5 identifies the number of different BE participants that have served on the committee. For this number, a particular BE participant is only counted once regardless of the number of years that she/he has served on the particular committee.

Table 3: BE Committee Data Summary (2007–2012)

<b>Description</b>	<b>Value</b>
Total # on Broader Engagement	49
Total # on Communications	3
Total # on Education	7
Total # on Infrastructure	1
Total # on Technical Program	25
Total # on SCinet	4
Total # on Student Volunteer	2
<b>Total</b>	<b>91</b>

Table 4: BE Committee Data by Year (2007-2012)

Description	2007	2008	2009	2010	2011	2012
# on Broader Engagement	2	5	4	16	16	6
# on Communications	1	1	0	0	1	0
# on Education	2	1	0	1	2	1
# on Infrastructure	1	0	0	0	0	0
# on Technical Program	2	1	2	8	6	6
# on SCinet	0	0	0	1	1	2
# on Student Volunteer	0	0	0	1	1	0
<b>Total</b>	8	8	6	27	27	15

Table 5: BE Participant Committee Data Summary (2007-2012)

Description	# People
Total # BE Participants on Any Committee	34
Total # BE Participants on Broader Engagement	20
Total # BE Participants on Communication	3
Total # BE Participants on Education	6
Total # BE Participants on Infrastructure	1
Total # BE Participants on Technical Program	13
Total # BE Participants on SCInet	4
Total # BE Participants on Student Volunteer	2

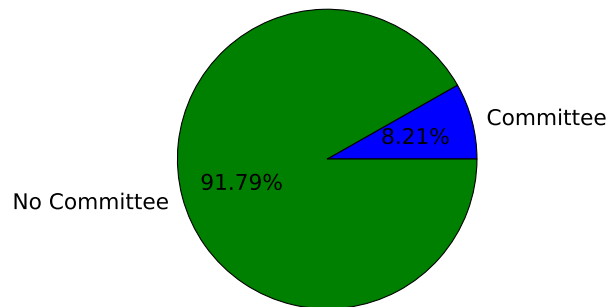


Figure 12: Proportion of BE participants that have served on at least one committee.

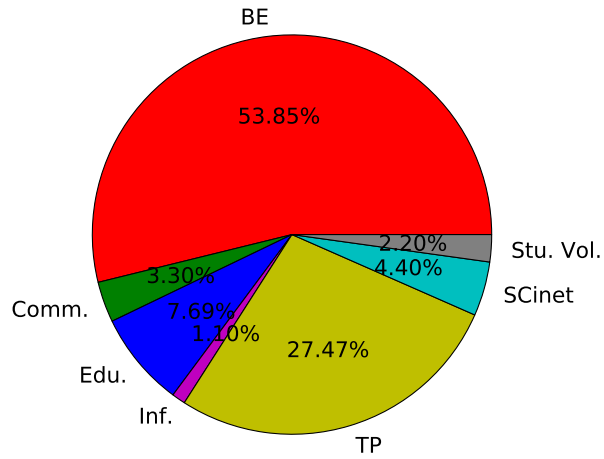


Figure 13: Of the BE participants who are served on committee, the proportion on the different committees

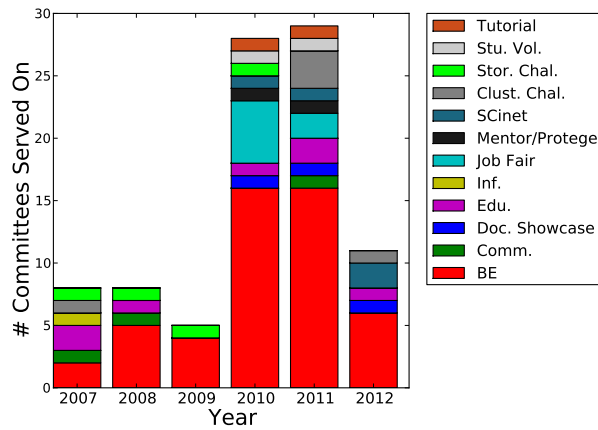


Figure 14: The number of BE participants on committees per year (2007–2012) broken down by committees.

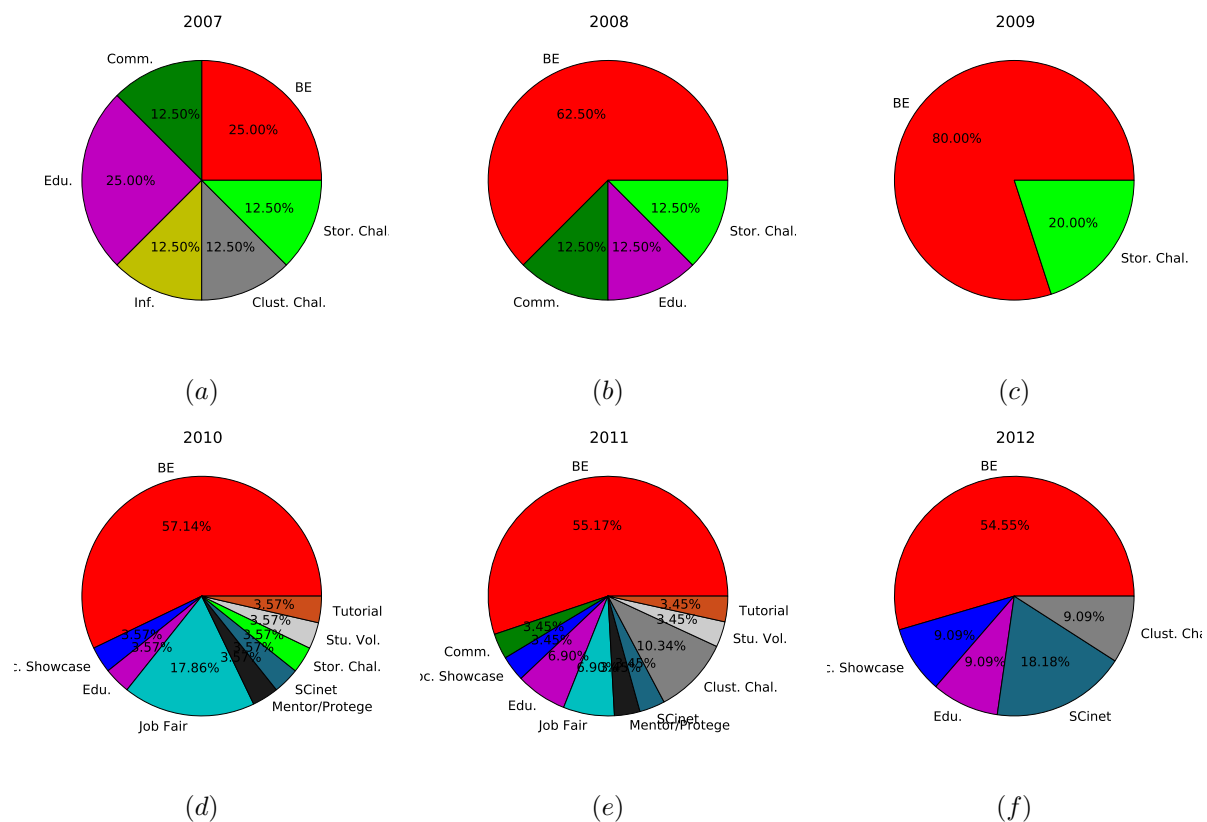


Figure 15: Of the BE participants that were on committees, this shows the proportion of committees broken down by category for (a) 2007, (b) 2008, (c) 2009, (d) 2010, (e) 2011, and (f) 2012.

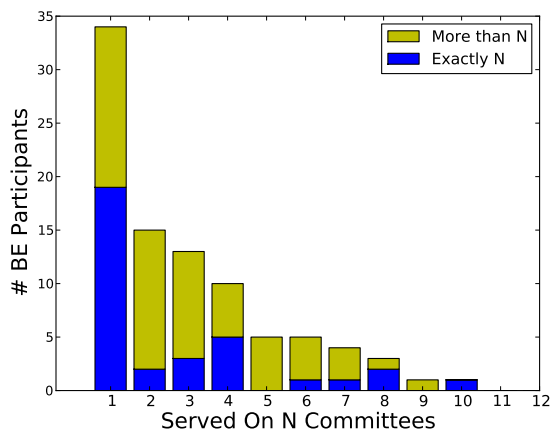


Figure 16: Of the BE participants that served on committees, this chart shows the number of people that served on exactly N committees (blue) and the number of people who have served on more than N committees (yellow).

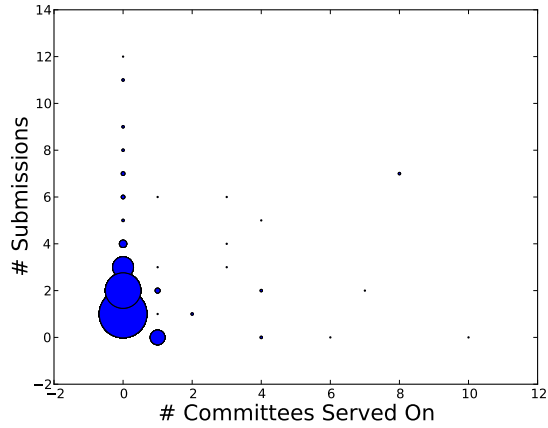


Figure 17: For each BE participant, this scatter plot shows the number of committees the person has served on versus the number of submissions that person has made to the conference. Larger points indicate that more individuals fall into the corresponding point.

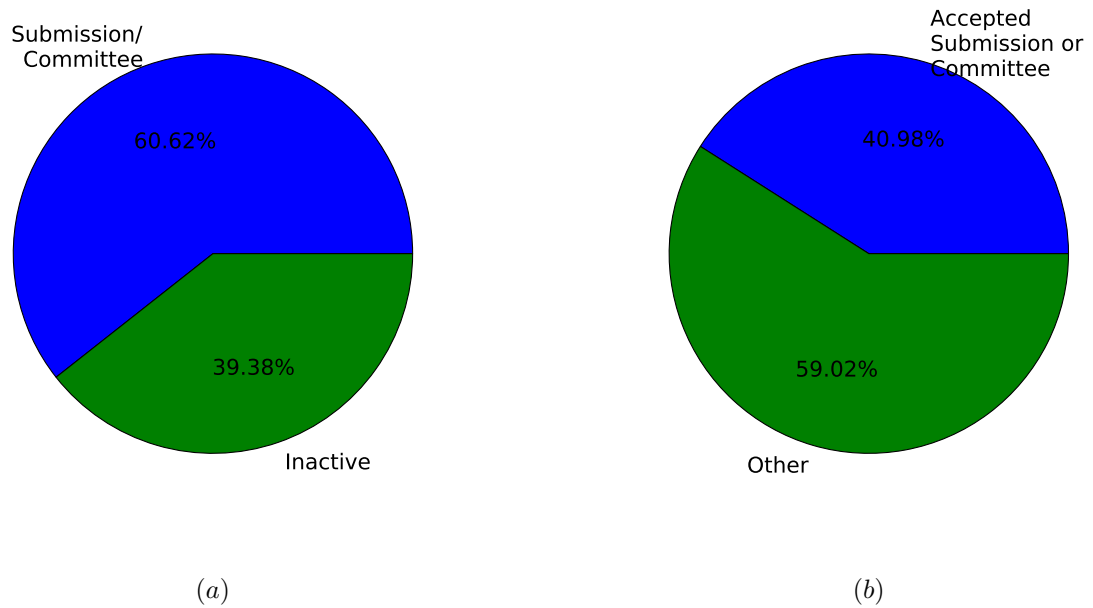


Figure 18: (a) Proportion of BE participants that have made a submission or served on a committee. (b) Proportion of BE participants that either have an accepted submission or served on a committee.



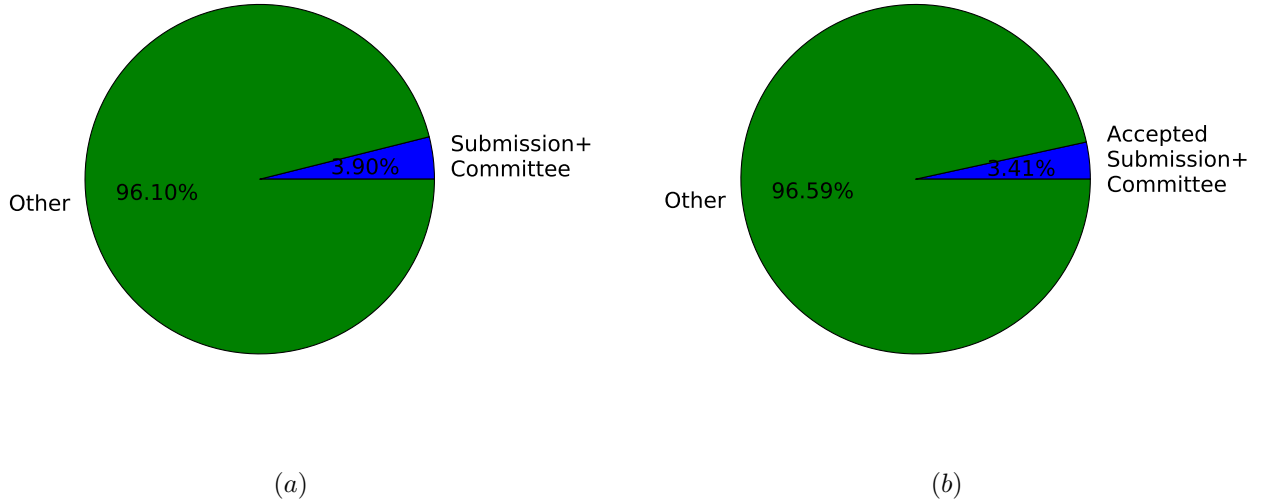


Figure 19: (a) Proportion of BE participants that have made a submission and served on at least one committee. (b) Proportion of BE participants that have an accepted submission and served on at least one committee.

## 5 Registration in SC Programs after Participating in BE

Figure 20 shows the percentage of BE participants who registered for the SC Technical Program after participating in the BE program. The percentages are broken down by year and only report data for BE participants from 2007–2011. Also note that the low percentage for 2011 BE participants compared to previous years is probably due to the fact that those participants have only had one year since participating in the BE program. Surprisingly, BE participants from 2007 do not have the highest percentage of registering for the Technical Program even though they have had the most opportunities since participating in the BE program. Table 6 contains records of when BE participants registered for SC programs.

Table 6: BE Participant Registration

<b>Description</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>
# Registered for Technical Program	–	9	33	64	88	53
# Compensated for Technical Program	–	9	31	50	40	25
# BE Participants Registered for Technical Program in Future Years	16	36	38	55	13	–

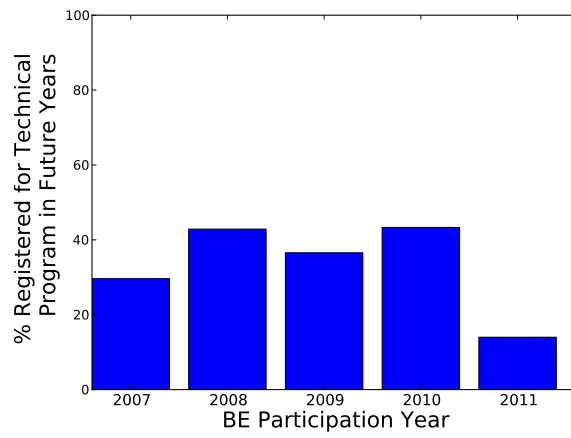


Figure 20: For 2007–2011, this shows the percentage of BE participants who registered for the SC Technical Program in the years after participating in the BE program.