Longitudinal Evaluation of the XSEDE Campus Champions Fellows Program

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Background

The XSEDE Campus Champions program establishes individuals as local contacts who provide expertise in using XSEDE resources and services to their local campus community. The XSEDE Extended Collaborative Support Services (ECSS) program provides in-depth consulting support to XSEDE-allocated principal investigators lasting from months up to one year. The Campus Champions Fellows program pairs Campus Champions with ECSS staff to work side-by-side with PIs for one year on these support collaborations, with some Fellows working on multiple projects during the course of their fellowship year. The objectives of this program are to:

- Transmit ECSS staff expertise to Campus Champions. This can include knowledge of XSEDE resources and services, and expertise in a variety of cyberinfrastructure techniques, including optimization and scaling, GPU programming, data mining and management, or visualization.
- Provide enrichment and professional development opportunities for Campus Champions to enhance their effectiveness on campus.
- Develop Campus Champions’ expertise in managing user support collaborations on their own campuses.
- Develop a network of Fellows to share expertise with other Champions and ECSS staff.

Fellows are required to make a 400-hour time commitment and are paid a $15,000 annual stipend for their efforts. The program includes funding for two, one-to-two-week visits to an ECSS or research team site to enhance the collaboration, as well as funding to attend and present at a Fellows symposium at a national conference (e.g. PEARC, SC).

The program, which began in 2012, has paired over 35 Fellows with ECSS staff.

Methodology

A longitudinal evaluation of the program was conducted to assess the long-term impacts of the Fellows program on participants’ career trajectories and ability to acquire and/or augment technical, managerial, and/or leadership skills. An online survey invitation was sent to 36 Fellows, of which 24, or 67%, responded. Of the 24 survey respondents, 21 also agreed to participate in a personal interview. Ultimately, 10 Fellows were interviewed. The online survey instrument and responses are included in Appendix A; interview transcripts are not included as they, by their very nature, include identifying information.

Respondent Profile

Survey respondents were awarded a Campus Champions Fellowship between 2012 and 2020. Three respondents received two Fellowships.

Of the 24 respondents, 50% had received their Fellowship since 2017. Table 1 provides the breakdown of survey respondents by Fellowship award year.
One-third of survey respondents (33.3%) were at the beginning of their careers when they were awarded their Fellowship. The largest group of respondents (41.7%) had been in the research computing and data (RCD) field for more than 10 years when awarded the Fellowship. One respondent was retired at the time of the Fellowship award.

Over half of respondents (54%) were faculty when they were awarded their Fellowship. Professional or technical staff members comprised 38% of Fellows, while two respondents (8%) were graduate students at the time of their Fellowship.

Findings from Online Survey

Respondents were asked about the outcome of their Fellowship. A majority of respondents agree or strongly agree that the Fellowship experience was successful (83%) and that the new skills gained will result (or have resulted) in career advancement (83%).

- I think the Fellowship program was an amazing success. My career has benefited tremendously from the program, which led to a long-lasting collaboration with the PI of the project. The PI also wrote a letter of recommendation for me, which led to me being hired as a tenure-track faculty member. I have since received tenure at a top 10 research university.

A smaller—though sizable—majority of respondents agree or strongly agree that the Fellowship experience has enabled (or will enable) new or deepened collaborations within their field (79%).

- This program has had a tremendous impact on my career in a positive way, and it’s helped me further integrate into the research computing community.

- I got a great deal out of the Campus Champions Fellow program. Meeting the other Fellows, mentors, and organizers on the regular calls was great and helped me to expand my network.

- XSEDE fellow program improved my skills, it gave me a good experience, very great connections, working with different environments, and helped me to achieve my goals. I am so glad that I had a chance to participate in the XSEDE Fellow program.
CC Fellow was a very exciting and useful opportunity for a campus champion to be involved in much larger-scale XSEDE-assisted projects, and collaborate with researchers in different locations. That is a once-in-a-lifetime experience.

While less than a quarter of respondents (21%) agree or strongly agree that the Fellowship resulted in a job promotion at their institution, this was not necessarily seen as a weakness of the program, as the following comment illustrates.

Great experience regardless of whether it advances your career or is recognized by your institution as value to the institution.

Findings from Interviews

Integration with the research team is critical.
The more successful Fellows experiences were where the Fellow was truly integrated with the project team (i.e., attending project meetings, meeting regularly with the PI, having critical deliverables, visiting the host site, presenting findings at conferences, etc.) Many Fellows took full advantage of the opportunity and prioritized working closely with their assigned research teams, taking what they learned back to their home institution.

I spent a week at [redacted], and I was able to not only just work with my mentor on a daily basis, but also I got to know many other people in the tech center. Later, I got a Fulbright at University of [redacted], and the [redacted] government, they have a project with [redacted]. So I was able to connect the two parts and we got a proposal selected.

Prioritizing timely feedback is important to the program’s success and evolution.
While Fellows are expected to attend and present at a conference or workshop as part of their Fellowship, there has been no other documentation or evaluation of their experience. For many of the Fellows who participated in this study, their Fellowships had been several years prior, leaving the details of their experience vague or forgotten altogether.

My experience with the fellow program was amazing! I may recommend to require a documentation from participants at the end of the fellowship which will explain their story of the fellow (explain every part of their projects, procedure, methodology, and the results). So, this documentation might be assessed by a committee at the end of the program so it may give a good feedback to XSEDE.

Better alignment with project and/or allocation cycles would increase benefits.
For some Fellows, their assigned projects were near conclusion at the time of their award, significantly diminishing the opportunity for collaboration. While adjusting the reward cycle would likely increase administrative oversight, doing so would significantly benefit the program and the Fellows.

If the ECSS allocation schedule could be synced up with the Campus Champion Fellowship start times, that would have improved my experience.
Commitment by all parties is critical. While the majority of Fellows indicated that the program was valuable, many suggested that some of the opportunity was not fully realized due to a lack of involvement or commitment, either by themselves or by their research team partners.

- I was unfortunately not proactive enough to recognize an unhelpful mentor/mentee relationship.
- I was put onto a project at the end of its ECSS allocation and the PI/Post-doc have seemed very indifferent about the work thus far. It is hard to get excited about a project when the people you are helping don't seem to care about it.

Fellows gained confidence and status as a result of their participation. Several self-taught, non-faculty Fellows mentioned gaining a sense of professional confidence, credibility, and stature from the program that allowed them to feel more comfortable working with computer science faculty. Other Fellows, having witnessed best practices during on-site visits, were able to improve their own workflows.

- I got a great deal out of the Campus Champions Fellow program. Meeting the other Fellows, mentors, and organizers on the regular calls was great and helped me to expand my network.
- I learned that spending three days on one problem and not worrying about anything else is valuable, which I've reused over the years. When I've needed to get something done, I say, “I'm going to block off this amount of time and just get my team together and we're going to solve this.”
- The Fellows program gave me a voice and greater respect and authority.

Communication of expectations is the foundation for success. Communicating expectations to all parties—the fellow, the ECSS mentor, and the PI—is critical to a successful experience. Many Fellows felt that they were inserted into a situation with no clear understanding of deliverables, participants, or responsibilities, and expressed that the program would benefit from a clear structure, defined responsibilities, and specific deadlines and deliverables.

- I think that's been a key to the more successful fellowships, having those expectations set clearly and being benchmarks or deadlines.
- I remember thinking multiple times through the process that they're calling me this Fellow, and I wasn't really doing much. I was going to these meetings and I was making a few suggestions, but I never felt like I was doing much. But then everybody said, “You did such a great job,” and I'm like, okay, maybe I did something. I didn't really feel like I contributed significantly.
Funding for travel to the collaboration site was a highly valued component of the program. The ability to travel to meet and work with project collaborators is viewed as a very positive and important part of the Fellows experience, providing dedicated time to focus on the project, as well as insights into how teams at larger institutions operate.

- I think the best part was the site visit.
- Being able to visit and see a real, full organization staff, and how they operate, how they work together as a team, separating out the various components of the systems management. It was good to see and learn from them, how that’s done.

The monetary stipend is considered essential. The financial stipend provided is a very important part of the program, conferring legitimacy and recognition, as well as forbearance from institutional leadership to the Fellow. While the financial impact differed for each Fellow, most agreed that they could not or would not have participated in the program without some level of compensation.

- I probably would have never even considered it without that.
- I’m not saying I wouldn’t have done it for less. but I probably wouldn’t have done it for free.

Early career individuals and those at teaching colleges realized more benefit. Early career individuals and those at teaching colleges (non-research institutions) seemed to more fully embrace the opportunity as a seminal experience.

- I was able to open a data mining class at my college. And I was able to mentor some students—indinpendent studies and a senior project. And I later wrote a paper.
- This is, like, educating the educator, so we are—whatever we learned, we were able to bring it back to our campus. And every penny of skill will be passed on to students.
Recommendations

A fully articulated statement of commitment acknowledged by all parties may be beneficial in managing expectations and outcomes.

Communicating expectations to all parties—the fellow, the ECSS mentor and the PI—is critical to a successful experience. Many Fellows felt that they were inserted into a situation with no clear understanding of deliverables, participants, or responsibilities, and expressed that the program would benefit from a clear structure, defined responsibilities, and stated deadlines and deliverables. Further, though the majority of Fellows indicated that the program was valuable, many suggested that some of the opportunity was not fully realized due to a lack of involvement or commitment, either by themselves or by their research team partners.

Make certain that principal investigators fully understand the goals of the program and the need to integrate the Fellow with their research team.

Putting a finer point on the need to fully communicate goals and expectations, the more successful experiences were where the Fellow was truly integrated with the project team (i.e., attending project meetings, meeting regularly with the PI, having critical deliverables, visiting the host site, presenting findings at conferences, etc.) Fellows who were fully integrated took greater advantage of the opportunity, prioritizing working closely with their assigned research teams and taking what they learned back to their home institution. Conversely, Fellows who were not included in regular meetings or part of routine conversations, those who were given non-essential assignments on which to work, and/or those who were given tasks to work on in isolation derived far less benefit and were less successful in the eyes of the Fellow.

Consider tying awards to projects, rather than calendar or project years.

For some Fellows, their assigned projects were near conclusion at the time of their award, significantly diminishing the opportunity for collaboration. While adjusting the reward cycle would likely increase administrative oversight, doing so would significantly benefit the program and the Fellows.

Interview participants at the end of their Fellowship year.

Prior to the commencement of this study, there had been no systematic evaluation or individual assessment of the Campus Champions Fellows experience. For many taking part in this study, their Fellowships had been several years prior, leaving the details of their experience vague or forgotten altogether. Capturing feedback in a timely and consistent manner would allow program leadership to identify strengths and weaknesses and make changes or improvements when necessary. Perhaps this sort of evaluation could be performed in a Birds-of-a-Feather (or focus group) session at the annual ACM PEARC conference.

Continue to encourage broad participation and representation from across the RCD domain.

Fellows ranged from early- to late-career individuals and included representation from research, teaching, and minority-serving institutions. Further, Fellows represented an array of educational backgrounds, including those who are self-taught technologists and those not on a typical research or faculty tenure track. Fellows mentioned gaining a sense of professional
confidence, credibility, and stature from the program that allowed them to feel more comfortable peering with faculty members. Other Fellows, having witnessed best practices during on-site visits, were able to improve their own workflows.

Continue to allocate funding for travel to collaboration sites and relevant conferences and workshops.
The ability to have in-person engagements was cited by almost all Fellows as among the most rewarding aspects of the experience. Those from smaller, non-research institutions prized the unique opportunity to engage with a research team, and those with limited budgets embraced the novel opportunity to travel and collaborate with colleagues external to their institution. Further, those at institutions with limited staff—where the ability to focus on professional development or a research problem is not possible or prioritized—noted the benefit of being able to mentally and physically step away from the demands of day-to-day operations.

Continue to provide financial compensation.
The financial stipend provided to Fellows was noted by many as a very important part of the program, conferring legitimacy and recognition, as well as forbearance from institutional leadership to the Fellow. While the financial impact differed for each Fellow—some received their stipend as additional income while others were able to “buy out” time—most agreed that they could not or would not have participated in the program without some level of compensation.

Prioritize Fellowships for early career individuals and those at teaching colleges.
Early career individuals and those at teaching colleges (non-research institutions) seemed to more fully embrace the opportunity as a seminal experience.
Appendix A: Survey Questions and Responses
XSEDE Campus Champions Fellows Longitudinal Study

Response rate: 66.7% (24/36)

Please indicate your level of agreement with the following statements:

<table>
<thead>
<tr>
<th>Question</th>
<th>Strongly disagree</th>
<th>Somewhat disagree</th>
<th>Neither agree nor disagree</th>
<th>Somewhat agree</th>
<th>Strongly agree</th>
<th>Mean</th>
<th>Std Dev</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>As a result of my Campus Champions fellowship(s), I've gained new skills and competencies that will result (or have resulted) in career advancement.</td>
<td>4.2% 1</td>
<td>0.0% 0</td>
<td>12.5% 3</td>
<td>29.2% 7</td>
<td>54.2% 13</td>
<td>4.29</td>
<td>0.98</td>
<td>24</td>
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<tr>
<td>As a result of my Campus Champions fellowship(s) experience, I have more confidence in stepping out beyond my primary area of focus/study.</td>
<td>4.2% 1</td>
<td>4.2% 1</td>
<td>12.5% 3</td>
<td>33.3% 8</td>
<td>45.8% 11</td>
<td>4.13</td>
<td>1.05</td>
<td>24</td>
</tr>
<tr>
<td>My Campus Champions fellowship experience has enabled (or will enable) new and/or deepened collaborations within my area of focus/field of study.</td>
<td>4.2% 1</td>
<td>12.5% 3</td>
<td>4.2% 1</td>
<td>25.0% 6</td>
<td>54.2% 13</td>
<td>4.13</td>
<td>1.20</td>
<td>24</td>
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<td>My Campus Champions fellowship experience has had a positive impact on my career advancement opportunities.</td>
<td>4.2% 1</td>
<td>0.0% 0</td>
<td>29.2% 7</td>
<td>16.7% 4</td>
<td>50.0% 12</td>
<td>4.08</td>
<td>1.08</td>
<td>24</td>
</tr>
<tr>
<td>As a result of my Campus Champions fellowship experience, I was asked to assume more leadership responsibilities.</td>
<td>8.3% 2</td>
<td>4.2% 1</td>
<td>45.8% 11</td>
<td>25.0% 6</td>
<td>16.7% 4</td>
<td>3.38</td>
<td>1.07</td>
<td>24</td>
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<tr>
<td>Question</td>
<td>Strongly disagree (1)</td>
<td>Somewhat disagree (2)</td>
<td>Neither agree nor disagree (3)</td>
<td>Somewhat agree (4)</td>
<td>Strongly agree (5)</td>
<td>Mean</td>
<td>Std Dev</td>
<td>Total</td>
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<tr>
<td>As a result of my Campus Champions fellowship experience, I was promoted</td>
<td>12.5%</td>
<td>12.5%</td>
<td>54.2%</td>
<td>12.5%</td>
<td>8.3%</td>
<td>2.92</td>
<td>1.04</td>
<td>24</td>
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<tr>
<td>to my institution to a position with increased responsibility and/or at</td>
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<td>a higher salary level.</td>
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<tr>
<td>My organization’s leadership views the Campus Champions Fellowship</td>
<td>8.3%</td>
<td>8.3%</td>
<td>29.2%</td>
<td>41.7%</td>
<td>12.5%</td>
<td>3.42</td>
<td>1.08</td>
<td>24</td>
</tr>
<tr>
<td>Program as an important opportunity for its staff.</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overall, my experience as a Campus Champions Fellow was successful.</td>
<td>8.3%</td>
<td>0.0%</td>
<td>8.3%</td>
<td>12.5%</td>
<td>70.8%</td>
<td>4.38</td>
<td>1.18</td>
<td>24</td>
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</table>

Are there any thoughts that you would like to share about how the Campus Champions Fellowship Program could be improved?

- This is a very valuable program, and I highly encourage its inclusion in the next XSEDE 2.0 (e.g., 3.0).
- I have to say that some of my responses are a bit tepid, but only because they don’t directly apply to my situation. First, I was retired at the time of my fellowship and worked on the project "on the side". So obviously I did not get promotions, etc. I am still working in the department on a part-time basis. Second, unlike most Fellows projects (which have a finite lifespan) mine was an academic program development effort. That effort was successful (an area of concentration in CS is in place). However, getting this in place required the review and approval of a pyramid of committees (and subject to their schedules) and review and input from a number of faculty (and of course, subject to their schedules. Consequently, the project took longer than I anticipated and was outside of the time-frame of usual fellows projects. Having said that, The project was successful, it just took longer.
- I think the Fellowship program was an amazing success. My career has benefited tremendously from the program, which led to a long-lasting collaboration with the PI of the project. The PI also wrote a letter of recommendation for me, which led to me being hired as a tenure-track faculty member. I have since received tenure at a top 10 research university.
- More opportunity to work directly with XSEDE ECSS staff (in addition to client).

Appendix A: Survey Questions and Responses
- I felt the program was run very well and provided excellent support and opportunities for my project. I'd like to opportunity to participate in a sabbatical type project, a year or multi-year project, related to my current employer/employment, yet provides opportunity to learn/grow by working/contributing or just reviewing and offering feedback with another HPC site(s) or multi-entity effort. I believe that working on collaborative projects beyond the local site forces us to expand our team-work skills. Another outcome could be to more quickly improve the baseline knowledge and services at all sites involved. Conferences, user groups and related events, resulting publications are helpful but working together on a project builds team skills. I find programs like the CC fellowship program can start a cascade of positive developments in the research computing field. These can be smaller than the CC fellow program and larger/longer term too possibly. I don't have all the answers but know that programs like this are useful, and the scope can/should vary. One program type doesn't fit all needs.

- The overall goal of my CC fellows project was to [[redacted]]. Looking backwards, one can now clearly see that the Intel Xeon Phi architecture was a complete failure (a downward trend that Intel has continued, see recent history for the Aurora supercomputer at Argonne National Lab). Because Intel did not build a good architecture, there was a low ceiling on what could be accomplished from this project. I am not sure how you fix this. Certainly there is a tendency for the private sector to over-promise and under-deliver with respect to HPC. Public cloud is a clear recent example of marketing and hype getting disproportionate attention as compared to actual impact (which seems fairly minimal). Personally, I have had a lot of success in computing over the last several years, so I have nothing to complain about. It does seem that there needs to be an increased level of skepticism about the private sector and the promises they make. Many companies seem to get more rope than they deserve. Only a few are really doing good things.

- The program is amazing and very impactful for its participants. I would highly recommend the program, if funding is available, to be expanded so more people can participate. My only pain point of the program was [[redacted]] being in charge of the funding. I experienced an extreme lack of responsiveness for travel reimbursement (months of multiple people not responding to emails and then months to get sent the reimbursements).

- If the ECSS allocation schedule could be synced up with the Campus Champion Fellowship start times, that would improve my experience. I was put onto a project at the end of its ECSS allocation and the PI/Post-doc have seemed very indifferent about the work thus far. It is hard to get excited about a project when the people you are helping don't seem to care about it.

- No Improvements. Thanks!

- I was unfortunately not proactive enough to recognize an unhelpful mentor/mentee relationship. The experience was not compromised on the personal level, but the project was not scoped in such a way that the mentor was able to share their experience. The tools and methods that they had developed did not translate to the tools available for me to use in pursuing the project work. I was too naive and interested in 'adapting' to the situation, once it was obviously at odds with the expectation developed when choosing the project. There were frank discussions on this point, actually, and I was given a chance to adjust, but didn't have the self-confidence to do so. It's been a few years, so I'm vague on the details. Please take the above as a qualitative self-assessment looking back. However, I think that the benefit of retrospection over a few years gives me strong confidence in my assessments of the questions asked initially about value and perceived value.
Appendix A: Survey Questions and Responses

- My experience with the fellow program was amazing! I may recommend to require a documentation from participants at the end of the fellowship which will explain their story of the fellow (explain every part of their projects, procedure, methodology, and the results). So, this documentation might be assessed by a committee at the end of the program so it may give a good feedback to XSEDE.

- I could not find an opportunity to apply what I learned as a campus champion. This is a reflection of the heavy workloads and research immaturity at my university - not the campus champion program.

- Matching a project is an important step. Activity of the PI is also important.

- It rocks

- No, it was extremely good!

- Excellent program, I benefit a lot from the experience and my students benefit a lot from the experience I gained.

In the coming months, the XSEDE project’s independent evaluation group will be conducting interviews and focus groups with Campus Champions Fellows to learn more about participants’ individual experiences. Are you willing to participate in an interview and/or focus group?

<table>
<thead>
<tr>
<th>Answer</th>
<th>%</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>12.5%</td>
<td>3</td>
</tr>
<tr>
<td>Yes</td>
<td>87.5%</td>
<td>21</td>
</tr>
<tr>
<td>Total</td>
<td>100%</td>
<td>24</td>
</tr>
</tbody>
</table>

Do you have any additional thoughts about your experience as a Campus Champions Fellow, either negative or positive, that you would care to share?

- This program has had a tremendous impact on my career in a positive way, and it’s helped me further integrate into the research computing community. As much praise as I’m conveying about this program, I will add that the mentors play a critical role to this program’s success, and I was very fortunate to get a great mentor. My mentor and I have stayed in contact after the program, and we continue to collaborate on projects. Again, this is a great program, especially for early career professionals!!!

- None other than was offered in my response a page or so ago. I believe the Fellows program is great. Nothing that I have said should be taken as anything less than the highest regards for the program.

- Absolutely wonderful experience. See previous note.

- Great experience regardless of whether it advances your career or is recognized by your institution as value to the institution.
● I was really happy to have the opportunity to participate and meet others involved with HPC in the area I was working. They were very helpful. The meetings I attended were also useful. This is such an open ended question. I’m open to discussion.

● I got a great deal out of the Campus Champions Fellow program. Meeting the other Fellows, mentors, and organizers on the regular calls was great and helped me to expand my network.

● It has been quite a few years for me. I think it is a good program.

● The Campus Champions Fellow program is amazing for exposure to research opportunities that are not traditionally funded by funding organizations (and some that are tangential to ongoing research areas). In that same regard, it opens up opportunities for non-research focused employees. Providing opportunities to partner with XSEDE (and other) organizations outside a Fellow’s regular network expands the knowledge and future partnerships for all involved.

● N/A

● I’d be happy to do so in an interview format.

● The XSEDE fellow program improved my skills, it gave me a good experience, very great connections, working with different environments, and helping me to achieve my goals. I am so glad that I had a chance participating in the XSEDE Fellow program.

● It is a great program!!

● CC Fellow was a very exciting and useful opportunity for a campus champion to be involved in a much large-scale XSEDE-assisted projects, and collaborate with researchers in different locations. That is a once-in-a-lifetime experience.

● It rocks

● Very positive. I am very impressed by the support from Nancy, Bob, Kay, and Marisa. I am very grateful for guidance from mentors and PIs. There is nothing negative at all that I can think of (even though I tried hard as I understand that may help future fellows).