

From Graduate Student to Fellow: Research Community, Membership Levels, and Recognition

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Every computer science graduate student learns early in their career which publication venues best match their research interests and where the best work in their area is appearing. These conferences are your research home. Every year, you should endeavor to submit, attend, network, and read the papers in these venues. For example, because I work in programming language design and implementation, I regularly read, attend, and submit to PLDI, OOPSLA, and ASPLOS. These activities build research expertise, expose you to new ideas and methodologies, help you focus your research efforts on important problems, and integrate you into your research community (Matthews, 2014).

Another aspect of community, sometimes overlooked, is joining the Computer Science Professional Societies (AAAI, ACM, IEEE, and USENIX), the volunteer organizations that sponsor the venues. Immediate student benefits include reduced conference registration fees, preference when applying for conference travel grants, and digital library access to publications, tutorials, and other resources. As your career progresses, professional societies offer a variety of community, leadership, and recognition opportunities.



Community Leadership

As a young or senior professional, you have the opportunity to shape your research community. For example, you can serve on program committees, help organize conferences and workshops, and become a Special Interest Group

officer. In these roles, you can influence the research directions, standards, and culture of your community. For instance, when I was elected and served on the SIGPLAN EC (1999-2001), I initiated *20 Years of the ACM SIGPLAN Conference on Programming Language Design and Implementation 1979-1999: A Selection* (McKinley, 2004) to improve scholarship in my community. By highlighting influential historical work and curating a selection, maybe students and researchers would read and cite more of them. As program chair of ASPLOS, I instituted double-blind reviewing to reduce bias (McKinley, 2008). Sarita Adve, in her role as 2014 ASPLOS Program Chair (ASPLOS, 2014), improved community scholarship by instituting a no page limit on references policy, which is quickly being adapted in Architecture, Programming Language, and Systems' conferences. By taking on these roles, you have an opportunity to improve your community. Research is a social process. The community needs your great research ideas and your service.

Community Recognition

Your community supports you in your career by recognizing your accomplishments. For instance, AAAI, ACM, and IEEE all recognize member contributions to research, education, and service with membership levels and awards. This recognition is easy for your manager, department chair, deans, and other administrators to understand. Research and service recognition help build social capital in your institution, your research community, and the broader computer science community, serving as independent validation. You cannot apply, but may receive some awards, such as test-of-time paper awards. What you can control is executing and communicating your research on critical problems as well as possible. Furthermore, for membership level recognition, you need to take initiative and apply yourself or ask one of your advocates to nominate you, as appropriate to your career stage and accomplishments.

Membership levels include Senior Member (AAAI, ACM, IEEE), Distinguished Members (ACM), and Fellow (AAAI, ACM, IEEE). For example, AAAI, IEEE, and ACM Senior Members need 10 or more years of professional experience, including graduate school. Both AAAI and ACM Senior Member in addition require 5 years of continuous society membership for this recognition and other awards, so do not let your membership lapse as you make your transition from student to professional!

If you are an Assistant Professor, there is no better time to apply for Senior Member than one or two years before you go up for tenure. You or your advocate may get a sense of your potential letter writers' enthusiasm for your case. You need senior people in your field to write strong letters of support for you. As you or your students give talks at conferences, Universities, and other venues, write down senior members of your community who attend the talks, comment positively on the work, and otherwise provide strong evidence that they actually read your work and admire it. No kind word should go unnoted!

Senior member letters are easy to write because they are short. Writing a short assessment of your accomplishments will help prepare a potential letter writer to write a more detailed letter for your tenure case. If you miss the before tenure time frame, apply immediately afterward, since earning tenure is a very good indicator that you are qualified for Senior Member. Furthermore, it will be easy for tenure letter writers to repurpose their comments.

If you are in industry at the 10-year mark (including grad school years), refreshing your professional network on your work is an activity you may have neglected without a tenure clock forcing function. To assess if you are qualified, look at the web pages, publications, citations, patents, industry impact, and other accomplishments for recently elected members in your area. If your record is similar, apply!

Regardless of your position, preparing a comprehensive CV, positioning your work in a larger context, and communicating with senior members of your community helps you and others reflect on your contributions. Your CV and statement of impact should be included in the email request for letters, to help potential letter writers make their decision and write the actual letter.

Choosing a good time to apply for ACM Distinguished Member or Fellow of AAAI, ACM, and IEEE depends on significant research contributions and impact. ACM Distinguished Member grade requires 15 years of professional experience and 5 years continuous ACM membership. AAAI, ACM, and IEEE Fellows require outstanding contributions and impact. AAAI seeks Fellows that have made significant sustained contributions. ACM Fellows are intended to capture the top 1% of the field. IEEE Fellows have outstanding contributions and the number awarded each year cannot exceed one-tenth of one percent of

the total voting membership. Compare your record to recent Distinguished Members and Fellows in your area by examining their publications, citations, service leadership, patents, and impact on industry. For example, Fellows often have highly cited papers that moved the field in new directions; test-of-time awards; technical leadership of conferences; membership on NSF, DARPA, or other science advisory committees; and/or highly successful products in industry. However, unique contributions are rewarded as well.

If you think you may be qualified, consult with a couple of trusted advocates who are Fellows, such as your department chair, for advice if the time is ripe. For these nominations, you will need a nominator, who submits the materials, coordinates the nomination, and asks for letters of support. While your department chair may nominate you and will have read letters for your promotion case to Full Professor, someone outside your University in your research area is perceived as more independent. I recommend conferring on a list of potential supporters with your chair and nominator. You will also have insight on which researchers know and appreciate your work the best. However, the nominator should email privately to ask for letters of support, since people may need to decline because they may have agreed to a write letter for someone else or because they are unwilling to write a strong enough letter. Removing yourself from this process limits hurt feelings and awkwardness.

You, the nominee, should definitely draft the statement of contribution, since you know your work best. A good nominator will have experience writing and reading such statements, and should help polish the statement. The statement of contributions should be written for a broad audience, since the selection committee members won't necessarily have expertise in your area. Don't be discouraged if you are not selected the first time because many current Distinguished Members and Fellows had this same experience. Regardless of the outcome, remember that your nominator and letter writers think your work is outstanding. Thank them for their time and efforts on your behalf.

Along the way

Contribute to your community. For example, serve on program committees, initiate community research activities, meet and mentor junior members of your community, nominate others for awards, serve on awards committees, thank and recognize others. With your research and service, help create a thriving and inclusive research community that you enjoy and that enriches your technical life.

About the Author



Kathryn S. McKinley is a Principal Researcher at Microsoft. Her research interests span programming language implementation, architecture, security, performance, and energy. She and her collaborators have produced widely used tools: the DaCapo Java Benchmarks, TRIPS Compiler, Hoard memory manager, MMTk garbage collector toolkit, and Immix garbage collector. She is currently focusing on Uncertain<T>, a programming abstraction for estimates. She has graduated 21 PhD students. She is CRA Board member, former co-chair of CRA-Women, an IEEE Fellow, and an ACM Fellow

References

ASPLOS '14: Proceedings of the 19th international conference on Architectural support for programming languages and operating systems, Salt Lake City, UT, USA, March 2014.

Matthews, J. (2014). Strategies for Computer Security Research: Practical Strategies for Taming the Angst and Changing the World, http://people.clarkson.edu/~jmatthew/publications/wicys/WiCyS_20140412.pdf

McKinley, K.S. (Ed.). (2004). 20 Years of the ACM SIGPLAN Conference on Programming Language Design and Implementation 1979-1999: A Selection, *SIGNOTICES*, 39(4), April.

McKinley, K.S. (2008). [Editorial: Improving Publication Quality by Reducing Bias with Double-Blind Reviewing and Author Response](#), *ACM SIGPLAN Notices*, 43(8):5--9, August. [\[webpage\]](#)

Editors' Note: Links to More Information about Membership Levels

- ACM Awards: <http://awards.acm.org/grades-of-membership.cfm>
 - Also investigate awards within your ACM Special Interest Group
- IEEE Awards:
http://www.ieee.org/membership_services/membership/grade_elevation.html
- AAAI Awards: <http://www.aaai.org/Awards/awards.php>
- USENIX Awards: <https://www.usenix.org/about/usenix-awards>