

Grace Hopper BOF Proposal

The Value of Research Experience to Undergraduate Students

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Abstract

This BOF will bring together students and educators interested in participating in and strengthening the undergraduate research experience. Topics such as the value of research, the use of projects as recruiting tools, the opportunities available and the positive and negative experiences of women in research will be discussed.

Introduction

Of course it is not a surprise that the Computer Science curriculum can sometimes vary greatly from college (or university) to college. What is surprising, however, is that some colleges do not require research experiences for graduation, and we, being students who are used to two such research or internship requirements, feel that this lack can be a great loss.

From our personal experience we believe that having a research opportunity is very important for an undergraduate education. Research gives students the chance to learn more about an area that they personally find interesting. The research can range from exploring new technologies not be covered in any textbooks to abstract theory to the practical application of existing, industry-staple technologies that the student would otherwise never learn to use before graduating and entering the workforce. Normally, research at this level is monitored by a mentoring professor, which thus allows the student to start building connections with staff members in the department. Especially at institutions where large class sizes are the norm, opportunities to build a personal, working relationship with the faculty should not be missed.

Proposal

We would like to have graduate and undergraduate students share their experiences and compare any thoughts and conclusions about the value of research experience, and any recommendations on how to acquire such experiences. What programs are available, and how can students become involved in them? Oftentimes, when students enter into a project that a mentoring professor is interested in, the project has already been in progress for quite some time. In other instances, students are allowed to choose a topic they are interested in and start a new project. We believe it would be interesting to compare the strengths and weaknesses to each approach.

Throughout this discussion, we would like to collect information and record key points, with the intention to organize and compile a guide on the research experience and to submit it as a small paper to the SIGCSE Bulletin, in order to share our findings with educators. Questions such as “How does research attract or discourage women?”, “In what ways can research change and improve/hurt the undergraduate experience?”, and “What are the most successful research methodologies?”

will be asked and answered. This BOF should lead to a dynamic discussion, thus we will not limit our topics to these. We will encourage focused discussion and collect the responses shared.

Expected Audience

Interested parties include: graduate or undergraduate students with research experience; undergraduate students who have not been involved in research and would like participate in such an experience; and professors who may or may not have mentored research before. The former category will be able to contribute a great deal to the discussion by sharing their own experience, be it good or bad, and bring awareness of the varied and possibly obscure research programs available at universities and companies.

The discussion should also be interesting to undergraduate students who have not yet had the opportunity to do research. It will hopefully open their eyes to all of the opportunities that are out there, especially for women in computer science.

Finally, the inclusion of professors will support a well rounded discussion, with the addition of the viewpoints of the people who choose to guide their research students.

Session Leader(s) Qualifications

Since undergraduates will be the ones who would benefit the most from this topic, the best candidates for session leaders would be undergraduate students, such as ourselves, who have had research experience in Computer Science.

Megan Thurber, a rising senior Computer Science major, and a Mathematics and Classical Studies minor, performed research during Fall 2003 semester on web accessibility with Dr. Deborah Knox, the department chair of the Computer Science department of The College of New Jersey. She has also been selected to participate in the CRA-W Distributed Mentor Program this summer, and will be conducting research with Professor Howe at Colorado State University on scheduling algorithms.

Rita Lee, a rising senior Computer Science major, has done mentored research at The College of New Jersey under the guidance of Dr. Peter DePasquale for the Fall 2003 and Spring 2004 semesters, with focuses on Bayesian filters and using PHP for dynamic web development. This summer she will be interning as a web application programmer at Marathon Data Systems, and the following semester, her research will explore the use of Lego Mindstorms as a vehicle for building a programming service course for non-majors.