Request for REU Supplement

We propose to involve the undergraduate students in ways that we feel are beneficial both to the research and to them. Since the proposed research involves quite a bit of design and development, the outcomes are quite tangible, and our past experience indicates that these tangible outcomes are quite motivational. Design and development are things they know how to do when they come in the door, and they can frequently hit the ground running, only needing to come up to speed on our particular development environment. Where they often need to widen the horizon of their experience is the rigorous quantitative evaluation of an existing design: how to design experiments, deploy and execute those experiments, and interpret the results. To ensure they learn how to do this, we make sure to incorporate empirical evaluation assignments in their duties.

We have a long record of involving undergraduate students in our research. Undergraduate co-authoring of papers for us dates back over twenty years to the 1990s [1], and several REU students were supported by the grants listed in the Results of Prior NSF Support section.

In our lab, advising and mentoring comes from both the faculty and graduate students. Both are involved in the initial assignment of tasks and the providing the day-to-day help and assistance that is essential to enabling a productive learning experience. The undergraduates are expected to participate in the weekly research team meetings, both presenting the work they are doing and contributing to the discussions of others' presentations. In short, we treat them like we treat graduate students, with the only accommodation being that their assigned tasks are adjusted (relative to that of a graduate student) to be consistent with their abilities and the time available.

The Computer Science and Engineering Department at Washington University in St. Louis has a mature and rich summer REU program. In addition to the advising and mentorship provided by the PI, REU students participate in department-wide programs throughout the summer, including: a Technical "Boot Camp" during the first week of the program, weekly Research Skills Seminar, weekly Faculty Research Talks, a Research Symposium during the penultimate week of the program, and several social events. As a department, we are committed to the success of our REU students.

The department advertises each year for students interested in ongoing projects that span the activities of the entire department. Recruiting and selection are coordinated at the department level, with strong PI involvement in the final selection process (described below).

Every year we explicitly recruit students from four year teaching and liberal arts colleges, women's colleges and predominantly minority colleges. Target institutions are sent mailings of flyers and brochures of our program. Department heads and previous year letter-writers are also contacted via email to advertise the program. We also advertise our positions to approximately 500 undergraduate women via the Grace Hopper Celebration of Women in Computing resume database, which we have access to as Academic Silver Sponsors of the conference. Each year we receive approximately 75 applications for approximately 15 REU spots. Students submit a transcript, CV, statement of purpose, letter of recommendation, and a ranked list of the projects they are interested in. Students and projects are matched through a coordinated effort between PIs and the Coordinator of the REU summer program. Diversity and target institutions are strong but not singular factors in the matching/admission decisions.

References

[1] R. Chamberlain and C. Henderson. Evaluating the use of pre-simulation in VLSI circuit partitioning. In *Proc. 8th Workshop on Parallel and Distributed Simulation*, pages 139–146, July 1994.