Teaching Statement

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Computer Science is an evolving discipline. Advances in the field can render last month’s lecture notes useless. The rapid development of materials by publishers is often accompanied by significant errors in textbooks. Ever-changing computing platforms, popular languages, and interfaces necessitate constant updating of knowledge on the part of faculty members. The dynamic nature of computer science makes it an exciting field to work in and a challenging and rewarding subject to teach.

One of the greatest challenges is to teach students new to the discipline. Students today bring with them a host of preconceptions about what they think computer science is. Their expectations frequently collide with what they are taught in their computer science courses, leading to frustration and a sometimes arrogant attitude towards their instructors. I especially enjoy teaching these students. Each successive semester of teaching CS 1 yields a few more good ideas about how to best convey the basic concepts of our field to students. I emphasize the mathematical foundations of computer science and its complexity. Teaching this material without losing the students is a critical task for the computer science teacher today.

In my years as a member of the computer science teaching faculty at the University at Buffalo I have developed considerable teaching expertise. I am comfortable in a wide range of teaching situations, from large lecture classes of over 200 students to one-on-one mentoring of student research. In the classroom I make frequent use of individual and group exercises and short quizzes to help keep students engaged.

I have high expectations for my students in terms of the quality of their work and their respect for me, for their peers, and for the learning process. Maintaining an atmosphere that fosters learning is critical. This can be particularly challenging in large course lectures: it is a challenge I have met.

I strive to keep pace with developments in research and with trends in popular computing. In designing class projects, I make a point of drawing ideas from popular computing culture. I conscientiously introduce social and ethical issues into my lectures. I feel that part of my teaching mission is to help students become informed citizens of the “Information Age”, which includes an awareness of the ethical issues of computing. I refer to my own research when appropriate, helping students to see the connections between their computer experiences and the underlying research that enables machine behaviors.

My interest in teaching includes both successful classroom performance and research in computer science education. Adapting and updating course materials and trying out new teaching techniques are ongoing processes. Interacting with other teachers is necessary in this age of curriculum upheaval. To this end my teaching activities include publishing the results of educational experiments and surveys in order to share them with colleagues, and seeking funding for innovative ideas for computer science education.

I enjoy teaching tremendously. I find it very gratifying to lead a student to understanding. When a classroom full of math-phobic, computer-shy students understands not only how to use Newton’s Method to calculate a square root, but how to implement it using an Excel formula, that’s a victory. It is equally gratifying to guide an honors undergraduate through a research project on optimizing a sieve for finding prime numbers. I have the ability to relate well to the top, the middle, and the bottom of the student population. Students feel welcome in my office; they are not afraid to ask questions. I abhor humiliation and encourage all students in my courses to achieve. I am a strong, positive role model in the classroom and go the extra distance to encourage underrepresented students in our field to participate. I strive to convey to all my students the excitement I felt in my first computer science course.