PERSONAL STATEMENT OF TEACHING ACCOMPLISHMENTS AND FUTURE DIRECTIONS

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I cannot recall when I first became interested in teaching. I grew up on the Amherst campus surrounded by excellent role models that shaped many of my views of education. After college, I was drawn to graduate school by my strong desire to teach. My graduate school years reinforced this desire. Consequently, although I have developed strong research interests, my commitment to teaching is paramount.

While in graduate school at the University of Virginia, I have gained considerable teaching experience. I have held four TA's for undergraduate courses in computer science and three TA's for graduate courses. For many of these courses, I led weekly discussion sections of 30–40 students each. I found this experience very rewarding because, for many students, I filled the gaps left by the limited interaction available in a large lecture setting.

In the fall of 1996, I had the pleasure of being a TA for CS 101: Introduction to Programming. This is the first course of an undergraduate curriculum that Virginia is developing with support from the National Science Foundation. In CS 101, students attend lectures twice weekly and participate in a two-hour closed laboratory. As a TA, I was responsible for running one lab that included the supervision of four undergraduate lab assistants. Our closed labs are similar in design to a physics lab; each lab focuses on a set of problems that students must work through. The lab provides a common structure, but it also allows each student to progress at their own pace. The lab instructor and assistants are available for individual help and to discuss solutions. I found the interaction between the students, the lab assistants, and myself to be stimulating. I plan to take much of what I have learned from this experience and apply it to my future curriculum plans.

In the spring of 1995, I was an instructor for CS 120: Introduction to Business Computing. This was a unique opportunity since, unlike many large universities, Virginia rarely permits graduate students to teach courses. I was responsible for all aspects of a course with an enrollment of 90 students: preparation of lectures, exams, and homework assignments, grading, office hours, supervision of two graduate TA's and six undergraduate graders, and assignment of final grades. Overall, I found this experience to be rewarding and frustrating.

In a course this large, there are always some terrific students that are difficult to challenge, students with learning disabilities that have special needs, and uninterested students that require considerable motivation. I found meeting these challenges is what makes teaching so rewarding. The frustrating part was the feeling of isolation and the impact that a course this size has on teaching methods. Engaging 90 students in lecture is difficult. Similarly, reinforcing these lectures through individual contact is not practical. Furthermore, the administrative overhead of supervising TA's and graders, and coordinating with other instructors reduced the time I could spend with my students.

I have gained much experience from my term as an instructor. My student evaluations were among the highest in the department for the semester and the department presented me with the Medal of Excellence in teaching. This was the first time this award was presented.

My experience at Virginia has reinforced my desire to pursue teaching as a career. I am interested in an academic position at a school with a superior undergraduate program. I would like to teach small courses that encourage student participation in class. To reinforce class material, I plan to develop
hands-on labs and promote close interaction with my students. As for my teaching philosophy, I believe theory and systems are complimentary. Systems courses should have a strong theoretical foundation and theory courses should include some hands-on programming. This approach produces students with strengths in both areas and better prepares them for both graduate school and industrial positions.

As an example, consider a course in data structures. The concepts in this course are hard for students to picture in their minds and difficult to illustrate statically on either a blackboard or transparencies. Therefore, I would try to bring the lab into the classroom as well as bring the classroom into the lab. To bring the lab into the classroom, I would use interactive demonstrations to illustrate concepts such as how data is inserted into a hash table and to answer questions posed by both the students and myself. I believe demonstrations can be appealing and can promote student participation. To bring the classroom into the lab, I would augment programming assignments with a closed lab to enhance the classroom experience and encourage interaction among the students. Finally, a good data structures class requires hands-on experience programming various structures. It also requires some theoretical foundation in algorithms. I would be sure to include some analysis so students understand the ramifications of their implementation decisions.

With my background, I can teach many courses that compose an undergraduate curriculum. These include introductory programming, data structures, computer architecture, programming languages, compiler design, networks, and operating systems.