Sibin Mohan's Teaching Statement

http://www.cs.uiuc.edu/homes/sibin/

1 Introduction

As the American historian Henry Brooks Adams said, "a teacher affects eternity, as he can never tell where his influence ends." I think this statement is a good representation of the influence an effective teacher can wield. Having been taught by some exceptional teachers, I hold similar beliefs. I consider teaching, along with research, to be among my longtime passions.

I enjoy teaching at all levels, be it undergraduate or graduate. I would like to teach the following advanced courses, since they align well with my research interests and the requisite material is readily available to me:

1. Real-Time and Safety-Critical Systems
2. Embedded systems.

I am confident that I can handle the following Computer Science courses with ease, at the graduate level: *operating systems, compilers and computer architecture*. I am also confident about teaching most *introductory computer science* or *computer engineering* courses.

I would also like to design *new courses* on the following topics:

1. Cyber-Physical Systems that deal with the design and development of such systems
2. Security in Embedded Systems
3. Architectures for Safety-Critical Embedded systems.

I co-taught a complete course and have been guest lecturer for various graduate/undergraduate courses. I have co-supervised Ph.D. and Masters students during their research and also supervised students as part of their independent study projects.

2 Teaching – C and Programming Tools (NCSU CSC 230)

In spring 2008, I *co-taught a complete course* in the Computer Science department at North Carolina State University. The undergraduate course, "C and Programming Tools" (CSC230) was aimed at introducing C, systems programming and related tools to students already familiar with Java programming. I used the following technique to teach a new programming language – put forth a problem statement and devise the solution *during the lecture* with the collaboration of students in the class. This was a technique I had found quite interesting during my classroom days. This was coupled with interesting programming assignments that helped the students gain an intricate knowledge of the memory management mechanism of C.

The students really liked my teaching style as well as the assignments. *I received very good reviews for the course*.

3 Guest lectures and Miscellaneous

During my tenure are a post-doctoral researcher as well as a graduate student, I have actively sought out opportunities to teach. In UIUC, I filled in as guest lecturer for the graduate course titled "Embedded Systems Architecture and Software" (UIUC CS 431). In NC State, I was a *teaching assistant* and *guest lecturer* for advanced graduate courses, *viz.* real-time systems (NCSU CSC 714) and operating systems (NCSU CSC 501). I was also a guest lecturer for other graduate (Parallel Systems, NCSU CSC 548) and undergraduate (Undergraduate Operating systems, NCSU CSC 244) courses. I was also involved in the tutoring of undergraduate students in a wide variety of subjects, such as Java, FORTRAN, Physics and Mathematics. I have attended basic and advanced tutoring classes at NCSU.

During my undergraduate years, I volunteered to be a *teaching assistant* and *mentor* for a programming course on C++ and OO Design. I also taught concepts on *compilers, logic, operating systems, open source technologies, mathematics, etc.* to classmates and younger students. I often volunteered to create demos and present

them at various locales, the most notable being the Linux stall at IT.com, India's premier information technology event. I was constantly involved in creating tests, assignments, *etc.* for a variety of academic and career development programs.

4 Fellowships, Awards and Workshops

During the $2007 - 2008$ academic year, I was the recipient of the *Preparing the Professoriate (PTP) fellowship* from the graduate school at NCSU. Only a handful of applicants (around 10) are selected each year from the university-wide community of doctoral candidates. It involves attendance at various *teaching-focused workshops and seminars* and ends with the participant teaching a complete course guided by a faculty mentor.

I was awarded a *Virtual TA* award by the Computer Science department for three consecutive years ($2003 - 2006$). This competitive award is given to select doctoral students in the Computer Science department. I was also a recipient of the *Mentored Teaching Assistanship* (MTA) for the spring 2008 semester, from the college of engineering.

My commitment towards teaching leads me to be constantly engaged in programs that *(a)* give me an insight into the teaching profession and *(b)* help hone my skills. During $2006 - 2008$ I was enrolled in the *Certificate of Accomplishment in Teaching* (CoAT) program at NCSU. I attended the *Academic Careers workshop* conducted by CRA in Washington DC in February 2008 where I learned about teaching styles, good methods to guide/advise students, *etc.* from experienced faculty members. I have also attended the *Preparing for a Faculty Career* workshop conducted by the NCSU College of Engineering. From such workshops, I have learned about ABET, Bloom's taxonomy, importance of Course Objectives and various teaching techniques.

5 Mentoring

I am currently *co-advising three graduate students* in the course of their Ph.D and Masters research. I am also actively collaborating with four other Ph.D. students on various research projects. In the past, I have also mentored three other graduate students as part of their independent study research projects. I work with the students to provide direction, nurture research ideas, assist them in problem solving and also provide guidance on writing research papers.

6 Philosophy

From personal experience, I have learned that students learn best when their minds are actively engaged – be it inside the classroom, or outside it. I appreciate the active and student-oriented learning techniques which ensure that students stay focused in classrooms and on the subject matter. Hence, I will work on incorporating these techniques in the classroom.

I will make a sincere effort to challenge students, intellectually, to bring out the best in them. This will also increase their understanding of not just the material being taught in class, but also its practical, philosophical, social, ethical and future implications.

I consider teaching and mentoring of students to be a vital component of a career in academia and I look forward to the opportunity of working with students.