Teaching Statement

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The US National Academy of Engineering has pointed out that the engineer of 2020 will face challenges generated by the globalization of the work force and increasing system complexity. As a computer engineering instructor, I want to prepare my students to lead the wave of change in high-tech jobs. In what follows, I shall briefly describe my teaching experiences, as well as the reasons that I believe make me a great fit for the assistant professor position in the department of Computer & Information Technology at Purdue University.

Basic Computer Engineering courses

During my graduate studies, I served as an instructor for a microelectronics lab, and a teaching assistant for a mathematics course geared towards electrical engineering students. My classes consisted of NC State University students and remote students from the UNC at Asheville. Hence, I acquired experience in teaching local and remote students. In fact, I found interesting how the local students could work independently, and the remote students would prefer to collaborate. I tried to foster the collaboration, by allocating the students who completed their assignment faster to help others. This helped good students elaborate their engineering communication skills, the rest to finish the assignments on time, and everybody to become more engaged. The feedback from the students and the instructor was very positive, and I was nominated for the Best Teaching Assistantship award.

Distance Education

In the summer of 2009, I took an opportunity to perform funded research on virtual collaboration from the Engineering Online department[1]. My objective was to identify a platform that would allow for seamless collaboration between the students, without the burden of software installation and licensing. I proposed a combination of a cloud computing environment, based on the VCL infrastructure[2], and a virtual world, in which students would login and share one or more blades. IBM expressed interest in my research and invited me to give a talk on the International Conference on Virtual Computing Initiative. The College of Engineering at NC State University also provided me with extra funds, under the Mentored Teaching Assistantship award, to apply my proposal in an actual Distance Education (DE) class. I found out that the success of such a platform depends on the class level, curriculum and student mix (local vs remote), with a higher acceptance ratio in graduate classes with professional DE students.

Student Advising

Based on my experience, my advisor allowed me to co-supervise senior design groups and graduate independent studies. This advising role allowed me to interact with different personalities and shape several ideas into interesting projects such as network traffic virtualization, application characterization etc. One of the MSc students that I worked with received the best paper award in an IEEE conference. It was rewarding to see these students establish careers in high-tech companies such as Broadcom, Cisco, IBM, Riverbed and Time Warner.

Teaching Proposal

A common motif in my teaching practice is that I always go above and beyond my normal responsibilities. I would like to apply some fresh ideas in teaching computer networks without changing the core material. For instance, I believe

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[1] Ref: Dr. Linda Krute, Director of Engineering Online, College of Engineering, North Carolina State University.
[2] Virtual Computing Lab at NC State University, where students can reserve software-specific blades.

that students should be introduced to new networking trends, such as cloud computing, data mining of network data and mobile applications, even in their basic network courses. I am also a strong proponent of engineering classes that consist of both a theoretical and a lab setting. I plan to take full advantage of the Networking Labs and any potential virtualization infrastructure.

As a prospective faculty, I am interested in teaching mobile computing, computer networking, wireless networks, queueing theory, simulation or fundamental classes in computer engineering, but I am open to any prospective assignment. My research experience has given me the chance to understand the core concepts, and will thus allow me to assist students in analyzing and solving computer engineering problems. I plan to prepare well-designed courses and create a portfolio of associated materials that students can refer to in the future. Finally, I will make sure that these courses are properly integrated with the curriculum of the department of Computer & Information Technology. In conclusion, I am highly interested in an environment that will allow me to establish a long term career as a teacher and a researcher. It is with this goal in mind that I am applying for this faculty position at Purdue University.