Teaching Statement

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As natural language processing and machine learning are becoming more important for our life, more teaching efforts are needed. My research experience in natural language processing and machine learning in addition to my teaching experiences qualify me to teach these courses.

Teaching Assistant

I worked as a teaching assistant in two universities, The University of Texas at Austin, and Alexandria University, Egypt. In Austin, I was a TA for three semesters teaching “computer architecture” and “computer organization” for undergraduate students. Two of the three teaching semesters included discussion sections. I helped the students with the material, discussed questions and made sure they clearly understood the topic. What I like the most about teaching computer organization is that it discusses the interface between the software and hardware, which helps students understand the big picture of how computers work. With this big picture in mind, they can write better code, and debug difficult problems efficiently. Making sure that the students get this big picture was one of my goals during teaching that course. I received good reviews in both semesters. The second serious teaching experience I had is three semesters of teaching in the Computer Engineering department, Alexandria University, Egypt. I was a TA for three semesters teaching “programming concepts” and “data structures” for undergraduate students. The teaching responsibilities included designing programming homeworks, weekly discussion sections, and weekly lab sessions. Designing the programming homeworks and discussing them with the students was a significant part of the teaching load of the course. Although the material of these courses were relatively easy, teaching them well is important. For many students, this was their first programming experience, so it is important not only to explain the material clearly, but also to assess the students understanding continuously, and make sure they got the basics right. One thing I tried, is to choose programming homeworks that are fun, e.g. games. I found that using games as programming assignments motivated the students to program and gave them the opportunity to come up with various innovative ideas. Overall, teaching these courses was a great chance for me to experience how to motivate students, how to make the material enjoyable, and how to continuously assess the students.

Programming Contest Mentor

During summer 2006, I was one of the trainers of the programming contest team of Alexandria University during their preparation for the Egyptian Olympiad in Informatics (EOI 2006). EOI is the Egyptian version of the International Olympiad in Informatics (IOI). The goal of the training was to teach the team algorithms because most of them had not take a serious algorithms course, then practice these algorithms in the programming contests setting. My role was to pick interesting programming problems that fit the topic of the day, discuss them with the team and guide them through the solution. The team made great success in the competition and won several medals. One lesson I learned from my whole experience with programming contests (I participated myself couple of times), is how powerful competition is to motivate people to learn and excel (as long as you keep it healthy and constructive).

Classes

I would like to teach natural language processing (NLP). Usually NLP courses focus on syntax, but I would like to add more emphasis on deep semantics analysis. Teaching semantics is important because it is the next big challenge in NLP and it is the current focus of a lot of research. I can also teach other related courses like artificial intelligence, machine learning and computational semantics. Teaching these courses can be fun for the students and for the instructor, especially that many machine learning and artificial intelligence topics can be implemented as computer players in games. It would be also interesting and motivating for the students to have their computer players play against each others and find out who wins. Given my previous teaching experience, and my masters in networks, I am also qualified to teach standard computer science courses like programming, data structures and computer architecture.