Teaching Statement

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I have had countless inspiring and knowledgeable mentors throughout my career. Their support, encouragement, and guidance have helped me grow into someone who is eager to pass on what I have learned. Therefore, being able to teach and mentor is one of the main reasons I have chosen a career as a professor.

Learning how to teach a concept needs a deeper understanding, which subsequently often improves my research. I particularly enjoy teaching both because it complements my research, and because of the deep satisfaction I feel when a student grasps a new concept.

I believe in the importance of tailoring teaching materials to different audiences. Previously, I gave two guest lectures about my research. One is the graduate-level course in advanced NLP at UMass Amherst, and the other is the undergraduate course in AI at Johns Hopkins University. When presenting material to undergraduate students, I presented technical concepts in an approachable manner, used many practical examples and asked guiding questions to ensure they understand the material. Graduate students, on the other hand, are more capable of dealing with abstract concepts, allowing my lecture to go more in-depth on the underlying principles. As a result, I was invited to present another lecture for both classes. Several students approached me after the course discussing more detailed questions, and two of them ended up conducting research with me.

My experiences have also provided me with valuable insights regarding student engagement. In my lectures, I paused between slides to encourage students’ questions. I like using small fun examples when motivating new topics. I also encouraged students to run simple code pieces during the class. In addition to the strategies I have employed, I am also very interested in experimenting with different techniques, for example, designing online quick questions to gather real-time feedback during the class. To generate even greater engagement, I am interested in exploring the flipped classroom model and preparing to design in-class exercises suitable for guided exploration in small groups.

Apart from the technical material, I value building connections with students by thinking from their perspectives. I was the head TA for a project-based course at UMass Amherst. Throughout the course, students worked in groups on projects proposed by industry partners such as Google. Advanced projects like these usually rely on heavy GPU cluster usage, and I had difficulty grasping the concept and usage of GPU clusters when I first started. Motivated by this, I initiated one GPU cluster lecture in the course. To make sure the students can follow the course material, I practiced the material with a "volunteer" student (my co-worker). Moreover, when I work on a project, I need to know if I’m on the right track earlier than later. So getting prompt feedback is also essential. Together with the course instructor, I arranged and led the panel discussions with other PhDs to assist students with everything from presentation techniques to project direction. Furthermore, I empathized with students, especially during the global pandemic. When the situation in India became worse, we made specific caring notes to students and offered assistance, such as having flexible deadlines for presentations and reports.

Finally, as a head TA for a project-based course with more than 70 students, I am also familiar with course logistics including booking classrooms, inviting guests for lectures, organizing panel discussions, and even handling unexpected situations. These unexpected situations range from a lack of communication within the group to a sudden project withdrawal from companies. When one of the companies withdrew its project, I immediately contacted the students assigned to the project and explained the situation. After getting their understanding, I assigned them to another project and contacted people from the new group to make sure the student felt welcome and up-to-speed.
MENTORING

During my PhD, I have mentored undergraduates, masters, and junior PhDs, totaling 12 students. These students come from different cultural backgrounds across 4 countries, have varying degrees of understanding about the research topic, and hold different degrees of research ambition (some target for a publication while others are more exploratory). Having gained these valuable mentorship experiences, I have developed a personal mentoring philosophy that emphasizes communication, based on the aspects outlined below.

I believe that **effective communication is the key ingredient for mentoring**. However, I am fully aware of the differences between individuals’ communication styles. In consideration of this, first of all, I always encourage students to ask questions anytime to clarify any ambiguities. As the saying goes: “the only bad question is one that isn’t asked.” However, each student has their own personality. Some are too shy to ask questions. To account for this, **online communication via email or message tools becomes advantageous**. I created a private chat space for each project I’ve mentored to build more efficient communication offline. Students can feel more relaxed by expressing questions and feelings in a way they feel most comfortable with via text, and I can also respond to them in a more timely and efficient manner.

Secondly, **together with the students, we establish clear goals about weekly deliverables**. At each meeting, I took notes regarding the next steps to ensure both myself and my mentees were on the same page about the project. Initially, notes were written by me, and the notes are of varying levels of detail depending on the mentee’s understanding of the topic. As time passed, I encouraged students to take notes to increase independence and the sense of ownership for the project. In addition, having worked with students of diverse backgrounds, I have learned to **modify my expectations based on their previous experiences**. In measuring a project’s progress, I believe that “slow is smooth and smooth is fast.”

In addition to these general principles, I have also **learned to read students and adapt my mentorship style accordingly**. Students are most likely to be productive when they find the project and mentor-mentee relationship enjoyable. If the student is an active explorer, I will devote more time to guiding the general direction of the project. In contrast, timid students will be strongly encouraged to take the initiative. Finally, I believe **good mentorship involves more than technical connections**. As a mentor, I want them to learn what is beneficial for their future life. Thus, in addition to project details, I also try to help with the general principle of communication, making clear presentations, etc. The sense of achievement witnessing the students grow into mature engineers or researchers is one of the greatest rewards for me. This is why I am committed to ensuring their success.

FUTURE TEACHING

As a first-generation graduate student and a member of a minority group in the field, I empathize with underrepresented students. I am a strong advocate of creating a more diverse, accommodating classroom, not only because of my personal background but also due to the fact that science is for all races, genders and ought to be available for everyone. **A diverse field with people of different backgrounds and with diverse opinions will more likely to advance science in a safer and less-biased direction, especially with AI ethics becoming increasingly important.** In this regard, I will continue to strive to create a welcoming learning environment for students from diverse backgrounds.

To conclude, I believe **teaching is a critical component of academic life since teaching and research complement one another**. My experiences have prepared me to teach undergraduate and graduate courses in computer science. I would be eager to teach natural language processing, machine learning, and related topics at both the introductory and advanced levels. If called upon, I’d be happy to teach more general and introductory computer science topics, from general artificial intelligence to computational discrete math to introductory programming. I look forward to serving my new academic community as a teacher and mentor.