Teaching Statement

JIEYU ZHAO, DEPARTMENT OF COMPUTER SCIENCE, UCLA

Teaching is an important task for a professor. I like to mentor students at different levels so that I have more opportunities to acquire new knowledge and improve my pedagogical techniques. I believe my experience has equipped me with the skills necessary for teaching and mentoring students.

1 Contributions

Teaching Experience I have been a teaching assistant (TA) for undergraduate courses. At UCLA, I have been a TA for the INTRODUCTION TO MACHINE LEARNING course, which is an undergraduate course with over 190 students. As a TA, I set homework, answer students' questions on course website, and write exams. I hold an office hour, and I meet regularly with the professor to discuss our current progress and any questions from the students. Some students have no prior experience of machine learning and need a lot of after-class assistance. One student attended my office hour very frequently. When she was confused by a lesson, I went over the course materials with her at her pace. I shared with her the same feeling of growth and joy when she finally passed the course. Before joining UCLA, I was a TA at the University of Virginia for undergraduate courses such as DISCRETE MATH, ALGORITHMS, and SOFTWARE DEVELOPMENT METHODS. I was responsible for grading the students' homework as well as holding an office hour where students could ask questions.

One big part of being a TA at UCLA is holding TA sessions every week. There are 40 students in my group. During a session, I first go through the basic concepts that were taught in class, and then I give the students some questions to help them better understand and master the material. For each question, I first let the students think about it independently and then they discuss and work on it in small groups. Such independent thinking combined with a group discussion helps the students in learning the concepts. I plan to adopt this method in my future teaching.

Mentoring During my PhD, I advised or co-advised several junior students. For example, I co-advised two undergraduates from UC Santa Barbara on fairness in natural language processing (NLP). My main role was to discuss their research, get an update on their progress, and answer any questions. I helped them to set up experiments and also revised and proofread their papers, two of which were accepted by top-tier NLP conferences. Even though the two students did not have prior research experience, their papers have been cited frequently. Both students went on to Stanford for their graduate studies and continued related research direction. Currently, I am co-mentoring several undergraduates in our research lab. Previously, I mentored students from underrepresented groups, such as a junior female PhD student from Virginia Tech. I discussed with her about the research goal and provided a list of related work to get her started. I helped her set up baseline models and worked with her on the problems that she encountered. Before our collaboration, she did not have any experience of ethics in NLP, and I am very glad that my research has attracted and inspired new people. With my research being recognized by more and more people, I have been honored to have been asked to give guest lectures for both undergraduate and graduate courses at UCLA, UC Santa Cruz, Pennsylvania State University, and University of Pittsburgh.

Teacher Training   Teaching is an important skill, but one that can be hard to obtain naturally. At UCLA, I attended a course for TAs run by my department. It gave us a chance to learn from professors and experienced TAs. We had to prepare a short class and present it to our classmates. We were encouraged to comment or make suggestions on each other's presentation. During these interactions, I learned much from the extensive experience of others. In addition, I have attended classes given by senior TAs to observe how they teach. UCLA holds a university-wide teaching workshop, which I attended. It gave me strategies for creating an inclusive classroom and teaching techniques that support student-centered instruction.

2   Teaching and Mentoring Philosophy

I strongly believe that a good teacher should not only equip their students with the basic concepts of the subject but also intrigue their interests in related research topics. Following these goals, I will design my course as follows:

1. *Explain the concepts with examples*. When learning a new subject, it is often much easier to understand difficult concepts through real-world examples. To teach and motivate my students, I will incorporate interactive demos into my lectures. I will ask them to think about real-world examples relating to the techniques we have learned. I will use the homework and projects to refresh the students' memory of the concepts learned and to let them gain a better understanding of their use in the real world.

2. *Design the course in a hierarchical way*. The students have different backgrounds, so I will provide opportunities for them to explore the topics based on their different needs and abilities. In my experience, there are mostly two types of student: (1) those who are new to the subject and just want to know the basic concepts and (2) those who already have some experience and want to explore the subject more deeply. In the class, I will provide the advanced students with optional material, which requires more critical thinking and can work as a starting point for further independent research.

3. *Run open-ended team projects*. In my class, I will encourage the students, who have diverse backgrounds, to form groups and work on class activities together. In NLP, we have a series of evaluation tasks (such as SemEval) and competitions (such as Kaggle), which can act as starting points for the students. Besides, I will also share with my students my research experience and discuss potential topics for them to explore.

In my experience of teaching and mentoring students, I really enjoy inspiring students to become creative and take the initiative. The personal satisfaction of seeing my students thrive is the most important reason for pursuing this career path in academia. I will continue to take on additional responsibilities, and I look forward to connecting with more students who are keen to learn new concepts and conduct research. In terms of teaching subjects, I am interested in teaching courses such as *Machine Learning* and *Natural Language Processing* at both undergraduate and graduate levels. As my research background is about NLP fairness, I am eager to make this an individual course or embed it as a special chapter in the above-mentioned courses. I am also excited about holding seminar courses that cover advanced techniques and encourage students to participate and find their interest for future research or study.