

Teaching Statement

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According to Albert Einstein, “It is the supreme art of the teacher to awaken joy in creative expression and knowledge.” Einstein’s words have shaped my teaching philosophy: in order to be a good teacher, you must be able to *stimulate the interest of students* in courses or research projects. I have been applying this philosophy through my work of teaching and mentoring. I will continue to devote myself to instilling in students a lasting interest in the subject matter or research problems.

Mentoring. During my time at Penn, I feel very honored to have mentored 6 master students and 3 undergraduates on various research topics in machine learning, from theoretical foundations, to software design, to applications in political analysis. My mentees include 8 international students, 4 women, and 1 student from an underrepresented racial group. Among them, two have already moved on to computer science PhD programs at Cornell and Penn. I really appreciate the mentoring experience, because I am simultaneously learning from my mentees, especially when they point out interesting research ideas from different angles. One of my students implemented state-of-the-art systems for both verbal and nominal semantic role labeling, which are now widely used in natural language processing (NLP) community. It is they who strengthen my determination to *provide an inclusive research environment* for students with all kinds of backgrounds.

I would like to serve as a mentor to guide students towards becoming *self-motivated researchers*. Based on my own research experience, I find that it is crucial to help students define a long-term research goal and, at the same time, set up feasible short-term milestones to maintain their research progress. Some students aim too high, and I would help break down the big problem to smaller pieces and construct reasonable project timeline. Some students aim for very tiny points, and I would try my best to motivate them, challenge them with harder tasks, and set up higher goals for them. Moreover, in order to keep everyone on the same page, I pay great attention to timely and frequent communication via different channels, such as meeting, slack, and email.

Teaching Experience. I have served as a teaching assistant (TA) twice for Applied Machine Learning (CIS 419/519) at Penn, and I was the head TA the second time. The course was cross-listed between undergraduate (419) and graduate (519) versions, and there were about 150 students from various departments with extremely diverse educational backgrounds. Some students were PhD students in statistics, while some were from arts without knowing linear algebra. How to *strike a balance between students from different backgrounds* – and engage all of them throughout the semester – had been a great pedagogical challenge and in the meantime, an excellent training for me.

In my recitations, I started by presenting some basic concepts to motivate students, especially those without a STEM background, and then elaborated more elusive problems for students who are interested in advanced topics. In my office hours, I had prepared to answer questions from various granularities. I had also spent extra time giving students from unconventional background an introductory tutorial about linear algebra and bringing them up to speed. At the end of the semester, I helped the instructor organize a poster session for final projects, where the students learned *how to present their scholarly work in a formal, academic way*.

Teaching Philosophy. In my own learning path, I am very fortunate to have excellent teachers and mentors who stimulated my interest in science. In turn, it is my responsibility to be an excellent teacher for the next generation of students, helping them succeed in future endeavors in industry and academia. In fact, I have a strong desire to teach, because the relationship between me and students will yield far greater mutual benefit in the long run. The great mathematician David Hilbert constantly challenged himself by teaching a vast variety of courses, which not only reinforced his remarkable mathematical versatility but also made him the proud mentor of a generation of young mathematicians and scientists.

In my view, the ultimate goal of teaching is not to simply deliver knowledge to students, but to *cultivate their eagerness to explore unknown things*. Therefore, the core of my teaching philosophy is to stimulate the interest of students in the course materials. Specifically, I try to make use of the following teaching strategies summarized from my previous experience: designing examples to attract their attention, illustrating basic concepts to clarify their understanding, providing course outlines to show an overview of what is ahead in the course, and asking open questions at the end of the class to encourage their exploration outside the class. For example, students are often struggling with contextual features for words in an NLP class. To help them understand, I would manually create a small corpus to show some running examples for feature extraction and representation.

Teaching Interests. In my future teaching endeavors, I am very interested in teaching a variety of courses in machine learning and natural language processing, at both undergraduate and graduate levels. In addition, I am enthusiastic about collaborating with other faculty members on designing and teaching research-level courses based on my research experience. For example, I would be interested in offering a seminar course in transfer learning for natural language processing. Topics would include cross-task learning, domain adaptation, and self-supervised learning, with applications to NLP.