Teaching Statement

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Coming from a family of teachers and having tutored students while in school, I whole-heartedly understand the importance of a good teacher and recognize what is needed to become one. Teaching is an art. Like all other arts, it requires passion and a *lot* of practice and effort. However, it also needs other intangibles. First and foremost is understanding. Today's classrooms are comprised of students from different backgrounds with differing skills and abilities. A good teacher recognizes this and looks to engage the entire class, not just the cream of the crop. Their goal it to ensure that every student is engrossed and comes away from their class having learned something valuable. A good teacher can empathize with students as they look to identify potential difficulties students may face and help them overcome these challenges. A teacher should exercise patience and learn to adapt based on how students respond to the material. They should constantly seek feedback and be willing to act on it, so as to better themselves. Being a good teacher is not always easy but it surely is rewarding. What other professional can claim to shape the minds of the next generation?

Over the course of my undergraduate and graduate studies, I have had the privilege of learning from many great teachers. Each of them, in their own unique style, has inspired and motivated me and helped me become a better person. I hope to have the opportunity to similarly influence young minds and help them achieve their goals.

Prior Teaching Experience

I still vividly recollect my first semester as a Teaching Assistant (TA) at Cornell for the Machine Learning class. I was appointed as the head teaching assistant since I had prior experience (as a grading consultant for a previous class) and had successfully completed a two-week teaching excellence program organized by the Cornell Center for Teaching Excellence. Overall, it was a great learning experience as it opened my eyes to the myriad challenges involved in successfully teaching a large class. As the head TA, some of my responsibilities included creating assignments, holding office hours, answering questions from students on Piazza, conducting review sessions, evaluating students during oral exams and help creating the written exams. I was also given sole responsibility of supervising the 11-week long class research projects. I was to make sure that students were receiving regular feedback from the staff and was in charge of logistics such as grading and the organizing of a department-wide poster session.

I also took charge of eight project groups and mentored them through the semester. It truly was an amazing experience as I firsthand got to observe the creativity and initiative of my students. I thoroughly enjoyed interacting with each of the groups on a weekly basis, as I introduced them to new concepts and helped them overcome difficulties. At the end of the semester, it was a proud moment for me as I watched my groups enthusiastically present their work to the rest of the class. I was deeply gratified to be presented with the Cornell Teaching Assistance Excellence Award for my performance in the class.

I have been fortunate to serve as a Teaching Assistant for the Machine Learning class two subsequent times as well – in the process winning the Cornell Teaching Assistance Excellence Award a second time (Fall 2013). I can honestly say that it has been a highly rewarding experience interacting and mentoring students, helping them overcome difficulties and aiding them in understanding the fundamental principles of machine learning.

I am always looking for new ways to innovate in the classroom, so as to keep students interested and for improving their learning experience. I am particularly motivated by the growing enrollment in Computer Science courses across the US. For instance, the Machine Learning class at Cornell has seen a massive increase in enrollment (now upwards of 320 students). To tackle this growth, one of the things we introduced was the peer grading of projects. Students found this to be a great learning experience as reading other projects helped them broaden their knowledge. It also allowed them to improve their

projects since they received substantially more feedback than what the course staff alone could provide them with. This year we introduced a student-generated question bank. The goal is to help students better prepare for exams, by providing them with more practice material than what the instructor alone could come up with. Going forward, I plan to continue innovating while being guided by findings in the pedagogical literature, in the hope of furthering student learning.

Courses I would like to Teach

To do justice to the young minds in the classroom, I believe that a teacher needs to be needs *experienced* and *passionate* about the subject matter. Passion is what drives the teacher to whole-heartedly commit to engaging students and helping them fully grasp the fundamental concepts. To teach a course that is maximally beneficial to the students, experience with the subject matter is critical. A teacher lacking experience may not be able to sate the students. With this belief in mind, I feel confident in my ability to teach courses on topics that I am passionate about and possess the requisite background.

During my undergraduate and graduate studies I have taken multiple advanced classes in computer science, statistics and applied mathematics. These include numerous graduate-level classes with research components. These classes have covered different areas within Machine Learning, Data Mining, Information Retrieval and NLP.

Armed with this background, I believe I am well-suited to instruct students on this material. At the undergraduate level this would include courses at the junior/senior-level such as *Machine Learning, Artificial Intelligence, Information Retrieval, Natural Language Processing, Data Mining, Web Search and Technologies, Recommender Systems* and *Data Science*, which introduce students to a sub-field of computer science and present them with techniques and ideas developed in that field. I would also be interested in teaching more fundamental courses at the freshman/sophomore-level such as *Discrete Mathematics* (my favorite undergraduate class), *Probability* and *Data Structures*, which involve building up basic concepts in students and setting the foundation for future computer science courses.

On the other hand, graduate classes tend to delve deeper into a specific topic as they introduce students to research directions and questions. Given the set of topics I have explored and accrued significant experience in, I would be comfortable teaching advanced courses such as *Advanced Machine Learning, Advanced Information Retrieval, Machine Learning for Education at Scale, Large-Scale Data Mining, Discrete Optimization, Advanced Language Technologies, Mining and Retrieval for the Web, Information Networks, Online Learning* and *Human-in-the-Loop Learning*.

Going forward, new avenues are going to open up for the application of ideas from Machine Learning, Data Science and Artificial Intelligence. By positioning myself at the forefront of these advances via my research, I believe I am well-placed to educate students about these cutting-edge technologies.