
One of the main reasons for me to seek employment in academia, instead of an industry lab, is the experience and joy of teaching and inspiring students. My interactions with students have been very rewarding both personally and professionally. A mentor's role entails tremendous influence and responsibility for shaping up engineers and researchers of tomorrow.

Teaching Philosophy: My teaching philosophy is to equip students with relevant theoretical foundations and programming tools to motivate future engineers and scientists, with an up-to-date course plan that adheres to the demands of industry and contemporary research trends. I am a firm believer in inculcating strong fundamentals among my students. Like for a budding musician practicing basic notes, creativity and execution are built on the foundations of robust fundamentals. I plan to tailor my lectures and assignments towards this goal, with three-pronged approach of intuition, rigor and practice to make sure the students have grasped the concept at hand. I have also noticed that home assignments that expand the discourse into insightful counterexamples are very helpful in understanding boundary conditions and corner cases of a concept. Course projects are a great way to encourage peer learning and have students gain some hands-on experience.

I understand students come from varied backgrounds, and some can be more shy than others when it comes to active participation in the class and asking questions. My goal in the classroom and office hours will be to create a collaborative and engaging environment to make sure students are comfortable enough to get the best out of the course.

Courses: I plan to teach graduate Machine Learning (ML) courses on theoretical foundations of data science – with the goal of training students on understanding not just what an algorithm does, but also why does it work? To best cover the material, I will plan two courses, focusing on single machine algorithms in one course and large scale machine learning in the second course. The courses will be self-contained, draw tools from optimization and learning theory, and have undergraduate probability and linear algebra as prerequisites.

Based on my research and experience as a Teaching Assistant, I am also comfortable teaching other computer science/engineering courses including Introductory ML, Algorithms, Discrete Structures, Web Mining, Optimization in ML, and Graphical Models.

Teaching Experience: I have been a Teaching Assistant (TA) five times during my Masters and PhD. As part of my TA duties, I have held homework and lab office hours for students ranging from undergraduate level to industry professionals with a wide variety of backgrounds. I have also designed several homework and programming assignments in addition to the grading duties. I have had the opportunity to teach a few lectures, as a substitute for a first graduate level course on Machine Learning. I understand that teaching can be fundamentally different from conducting research, and in some ways can even have a synergetic effect. Devising effective ways to get my message across to students also helped cement my own understanding of the subject.

Mentoring Experience: Towards the later part of my PhD and as a postdoc, I also took every opportunity to mentor graduate students. The machine learning research moves at a fast pace which can be daunting for a new graduate student. Postdocs and senior graduate students can not only be active collaborators on common research interests but can also complement professors in covering more ground for disseminating published works and for seeking new research directions. I had the pleasure of mentoring Francesco Locatello who recently graduated with his PhD from ETH Zurich on projects about optimization theory and sparse inference. Our collaboration started when I spent a summer at ETH, and we went on to work on three papers published in top ML venues. I have been mentoring Yibo Zhang from UIUC on some ongoing optimization related projects. At UC Berkeley, I have been interacting with Francisco Utrera, Evan Kravitz, and Ryan Thiesen on deep learning related projects.

As a recent PhD grad, I am familiar with psychological challenges that graduate students face. I am a strong proponent of fostering sound mental health in my mentees. I will encourage my students to pace themselves and recognize that a research career is not a sprint, it is a marathon. I see my goal as a mentor to be that of a facilitator to ensure my mentees can realize their full potential, and hopefully pass the torch on to the next generation some day.