My main teaching goal is to share the fascinating concepts and practically useful ideas in computer science with students. I would like my students to acquire necessary skills that allow them to creatively contribute to a diverse set of challenging real-world problems. I can particularly help them by teaching foundational courses in modern machine learning and decision making. I have the expertise to teach courses such as Introduction to Machine Learning and Data Mining, Reinforcement Learning and Sequential Decision-Making, Statistical Learning Theory, Optimization, and Advanced Seminars on Machine Learning. I can also teach introductory CS courses. I additionally see my role as a research advisor pivotal for training the next generation of machine learning researchers. My experience in advising a graduate student has proved that research mentorship can be very enjoyable and productive for both sides.

After years of being in academia, I understand that students have different goals, backgrounds, and even learning styles, and that a single fixed recipe will not serve them all. However, I believe that by following three main principles, one may address the needs of most students. These principles are based on my personal experience as a graduate advisor, TA, lecturer in graduate-level courses, organizer of several reading groups and research seminars, along with my readings in educational psychology. The first principle is what is known as the **growing mindset** in the psychology of success literature (cf. Carol Dweck, Mindset, Ballantine Books, 2007). As opposed to the fixed mindset, which is the belief that a person's talents and capabilities (such as intelligence and creativity) are fixed traits, the growing mindset is the belief that they can be changed and developed by learning. For example, while one might not be good in computer science or mathematics now, he or she can become very good later. The requirement is to accept the growing mindset, embrace the challenges of learning, learn how to self-evaluate oneself, and practice with dedication.

Having attended a gifted-student high school that promoted the fixed mindset, I recognize the faults of such a system. I believe that it is an essential component of my job as a professor to help students discover and nourish their talents, rather than segregating students, even implicitly, based on past performance. In addition to teaching students the growing mindset principle, I emphasize grades and exams more as an external feedback signal for students to re-adjust their efforts rather than as a measure of success. For instance, I would assign regular homework and class quizzes instead of one or two major exams. This evaluation method would gradually teach students how to self-evaluate themselves without the need of external feedback. This skill is necessary for the goal of lifelong learning.

The second principle is that **learning should be done by interaction**. This is of course not a new idea. Everyone knows that one cannot learn a sport simply by watching. What is less known and practiced, however, is that higher cognitive capabilities can also be learned in this manner. For instance, it is much more effective for a student to learn mathematics by trying to follow all the steps of the proof of a theorem with an actual pen and paper instead of just reading the proof several times. Moreover, much can be learned by tweaking the conditions and assumptions of the theorem to see their effects on the result. The student should ask herself questions like "Does this theorem still hold if I relax this assumption a little bit?" or "Is it possible to generalize this inequality to other spaces?". These research mini-projects deepen the student's understanding of the result. I would be a facilitator in helping my students learn through interactive and research-intensive education.

The final principle is that **learning itself should be a rewarding and fun activity**. The goal is not only to learn skills for future use, but also to enjoy the process of learning. One approach is to include elements of puzzle-solving and a slight amount of competitiveness to the class. This is particularly easy in machine learning and other data-intensive courses where students can test out ideas with data. I would also encourage teamwork and cooperation between students, because in addition to helping them learn better, it leads to meaningful social interaction between students. The social aspect is particularly important for CS and engineering students who tend to isolate themselves.

The way these principles should be implemented depends on the course. For example, in a moderate-sized (30–50) *undergraduate theoretically-oriented course*, I would ask students to solve small problems or provide the sketch of a proof for an easily-provable statement in a matter of few minutes. Afterwards, I would ask some of them to present it to the class, and if failed, gradually guide them toward the correct solution. For more *advanced courses*, I would get students involved in the generation of scientific hypotheses or engineering solutions to relatively challenging problems and have them try to either refute those ideas or refine them to the level of becoming plausible solutions. I would use techniques such as *brainstorming*, *roundtable discussion*, and *changing the level of abstraction* of the problem in order to help their thinking process. I would assign my students several mini-projects that go beyond textbook material and require them to refer to the literature and to spend a few hours of serious thinking. They would present their findings in the classroom and all students would be involved in the discussion. This experience teaches them how to approach a problem like a scientist, how to study hypotheses, and how to communicate research findings to a group of colleagues – both as a talk and as a written report.

I partly implemented these ideas in some short courses (e.g., *Control Theory*, *Soft Computing*, and *Fuzzy Logic*) in addition to some sessions of lecturing for a *graduate-level Machine Learning* course during my postdoctoral fellowship at McGill (where I taught Statistical Learning Theory and assigned homework). I also have experience in organizing research seminars: I have organized several *reading groups* during my PhD studies at the University of Alberta and Postdoctoral work at McGill where I gained experience in choosing relevant papers, presenting them, and keeping the group motivated and forward-moving (topics: Random Projection in Machine Learning, Compressive Sampling, Function Approximation in Reinforcement Learning). I also organized *Teatime talks* during my postdoctoral fellowship, in which students presented recent research papers to the lab. This helped them become more familiar with the current research trends and practice their presentation skills.

I have been extremely lucky to have great advisors/mentors throughout my university education. My advising approach, which borrows some elements from each of my advisors, follows the aforementioned principles (*growth mindset, learning by interaction*, and *learning as a rewarding and fun activity*). During my postdoctoral fellowship at McGill, I found the opportunity to advise a graduate student. I initiated a new research interest in my student, guided him through challenges of research by having meetings several times per week, and helped him write a paper that got accepted at a top-tier conference in machine learning (NIPS) (accepted as a spotlight presentation, which has a 4% acceptance rate). The experience was very enjoyable and productive for both of us.

Now I see that my job as an advisor, especially in the earlier stages of graduate studies, would be to make sure that my students find research topics about which they feel passionate, while the topics are interesting to the research community as well as being manageable in the given amount of time. I would like to have a vibrant research group where students brainstorm during the regular group meetings; and in individual student meetings, we both work on the problem together. I encourage collaborations within members of my group as well as with other research groups in the department and beyond. My advising would prepare my graduate students to become the next generation of enthusiastic researchers who tackle practically and theoretically important problems of machine learning, data science, and AI.