

# Teaching Statement

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One of the perks of an academic life is the opportunity to interact with young and bright students most of whom are at the threshold of stepping into the real-world. It gives me immense satisfaction and joy that I as a professor will have the privilege to take part in the initial stages of their journey. It will also provide me a platform for improving my own skills both in terms of expressing myself as well as be a great source of research ideas. Below, I describe in detail my experiences and ideas in teaching:

**Previous Experience:** I had the privilege of being a teaching assistant (TA) for Signal and Systems course during my undergraduate and Advanced Artificial Intelligence (AI) during my graduate days. Both these assistantships allowed me to teach a few classes as well as play an active role in setting up assignments/exams and grading them. Following are my observations as a TA for these courses: (a) Students are more receptive in class when pictures/movies are used during teaching. For example, relevant video clips from the movies Matrix or Terminator, can help in presenting the bigger picture of the type of futuristic systems we will be looking at in an AI class. (b) During the Advanced AI class, students were taken on a field trip to ICT (Institute for Creative Technologies) where a variety of Artificial Agents are simulated with realistic graphics. This stimulated a lot of discussion in class with many students expressing interest to get involved in similar projects. (c) Another valuable point I learnt is that students feel very connected to the subject if the history of the topic/field is made clear or an attempt is made to connect the concepts to popular literature. For example being able to connect a game-theoretic idea like prisoner's dilemma to the movie Dark Knight or explaining robotic concepts using science fiction work by Issac Asimov brings an instant connection with the topic especially at an undergraduate level.

My office hours also allowed me to interact with students individually and get their feedback on various issues. For example, I was surprised to learn that many more students than I expected actually look through class slides before the class. Given this experience I will ensure that I will make my teaching slides available beforehand. Another thing I learnt the hard way is grading can be a contentious issue if the grading scheme is not made clear beforehand. And students are much happier if a detailed marking scheme is provided for each question in an exam rather than a coarse evaluation. Many such finer details which may not directly get discussed in a classroom came to my notice through individual interactions. In addition, I was in charge of mentoring a couple of master's students during my PhD. I also gave tutorials on my research to an audience, unfamiliar with my area of research. I am hoping to translate all this valuable experience into practice when I teach courses.

**Teaching Philosophy:** Computer science is a practical field. Based on my own experience and from the feedback provided by students I believe that students should have a hands-on experience in building small systems or working through problems rather than

just a theoretical treatment of the subject. The impact of a hands-on experience tends to stay for a much longer time. I would also like to keep my courses flexible. For example, students can have the option of pursuing a bigger project instead of doing multiple smaller ones. Given the subjective nature of evaluation of projects, I will pay careful attention to the evaluation criterion. I would like to evaluate my students progressively over the semester through assignments, projects and quizzes rather than just through tests. In more advanced courses, tests may totally be replaced with writing a research paper or a major project.

As the world gets increasingly networked, the role of a traditional teaching method may decrease to some extent. However, a teacher would still need to play the key role of inculcating curiosity in learning the various concepts and techniques and show the joys of exploring the various topics without necessarily focusing on end results. To facilitate this, I will keep my classes interactive. I will also introduce discussion sessions on open-ended topics (A simple example could be a discussion on how the future Artificial Systems would look like in an AI class). I would also like to invite guest lecturers or do a field trip for my courses whenever possible. Lastly, I will ensure that my grading system doesn't penalize students for doing more exploratory work rather than a results oriented work.

**Plan for future:** For undergraduate level, I am interested in teaching core computer science courses such as Artificial Intelligence, Databases, Programming Languages, basic Optimization and others. I am also interested in developing and teaching new non-conventional courses such as a course that uses science fiction to teach Artificial Intelligence or a course that uses e-commerce or world wide web as domains to introduce databases. I believe that these mixed type of courses would be more suitable at an undergrad level since they will be able to provide practical context to otherwise theoretical subjects and potentially inspire students to pursue these subjects at an advanced level. For graduate level I am interested in teaching advanced courses such as Advanced Artificial Intelligence, Multiagent systems, Game Theory, Security and others. In addition, I would also like to teach specialized research courses that focus on research in Artificial Intelligence and building practical AI systems. Students of late are exposed to a lot of options to pursue at a very early stage and hence decide on their career paths early. As a passionate researcher in the field of Artificial Intelligence, I believe that it is my duty to expose them to the joys of research and help to spot and groom the future scientists early.