Teaching Statement

Hanghang Tong

I enjoy helping people, especially sharing with them the skills and knowledge that will be helpful in their future studies and careers. I believe that teaching is one of the most powerful ways to help others.

During my Ph.D study in Carnegie Mellon University, I was a teaching assistant for two graduate level courses: multimedia databases and data mining by Prof. Christos Faloutsos and machine learning by Prof. Eric P. Xing. In both classes, I was actively involved in designing homeworks, holding weekly office hours, advising course projects, etc. For multimedia databases and data mining, I gave a guest lecture; and for machine learning, I held recitations to review the topics covered during classes as well as to introduce the supplementary material. Through these mini-lectures, I really enjoyed helping the students to understand some subtle points. I also tried to show the students the connection among various topics covered in the class; and to further broaden their knowledge horizon by introducing the supplementary material.

Besides being a teaching assistant, I also gave a lot of talks, including tutorials at conferences (e.g., CIKM 2008, ICDE 2009); overview talks at CMU machine learning seminar, CMU databases seminar, AT&T Labs, IBM TJ Watson Research Labs, Lawrence Livermore National Labs; and presentations at top-tier conferences (KDD, ICDM, SDM, CIKM, etc). Some videos for my conference talks can be found at http://videolectures.net/hanghang_tong/.

My teaching philosophy for lectures is to take the following three steps. First, I will try to *capture the students' attention* by clarifying the *motivation* at the very beginning. Students are willing to learn if they realize how important the topics we will introduce are, and that it is closely related to their daily lives. Second, I will *maintain their attention* by keeping them *active* in the class, by asking questions and encouraging discussions. Finally, I will *focus their attention* on the most important points, using *concrete examples* and the *intuition* behind the abstract concepts.

I found that it is important to not only make the lectures engaging, but also design homeworks carefully. Through my past experience, I found that in order to help the students gain deep understandings out of the material covered in the class, the best way is to let them interact with it themselves. Therefore, it is very important to design interesting and engaging homeworks.

I would be happy to teach any undergraduate introductory courses; advanced undergraduate and graduate courses on data mining, machine learning, optimization, statistics and linear algebra, in addition to more basic courses (e.g., algorithm, data structure, etc). I also plan to design a new course on mining large social media, which will combine high-impact applications, data mining, matrix algebra as well as scalable methods.