

TEACHING statement

Jure LESKOVEC

__ As a graduate student, I have actively sought opportunities to teach and advise students. Moreover, I was active in sharing the knowledge and popularizing the field by presenting overview talks at CMU and longer tutorial talks at conferences and workshops. Both these experiences were fascinating and rewarding. I see teaching and advising students as important elements of my future career.

__TEACHING ASSISTANT__ I have had many opportunities to teach and interact with students. I was a teaching assistant for two very different graduate level classes. First, I was a teaching assistant for Prof. Carlos Guestrin in 10-701 Graduate Machine Learning, which is the most popular graduate class across all of CMU. I was actively involved in shaping the curriculum (what material to cover), designing assignments, including programming and data analysis problems and advising students on course projects. As the students were very diverse, many coming from different departments outside computer science, I held recitations where I would review topics presented in the class. These mini-lectures gave me a chance to rethink the class lectures, present the material in my own way and help students clear their last doubts. Second, I assisted Prof. John Lafferty and Prof. Larry Wasserman in 10-702 Statistical Foundations of Machine Learning, which is an advanced machine learning class of less than 20 highly motivated students with very open and engaging theoretical and modeling assignments. The class was a very different experience as I interacted very closely with the students. I found it challenging and rewarding to explain abstract statistical concepts, link them with intuitions and real-world applications and data to obtain a successful working model.

__ADVISING__ At CMU I have also had an opportunity to work in a more advisory role with junior Ph.D. students and undergraduate student Michael Goetz, who is now a Ph.D. candidate at Cornell University. These projects led to interesting research work and publications at top conferences. My goal when advising a student was to encourage independent thought – let them discover their own strengths and interests. These interactions taught me that advising each student is a different, exciting and challenging path that needs right guidance, patience and enthusiasm. I am looking forward to advising and collaborating with many students.

__TUTORIALS__ During my Ph.D. studies I compiled a series of overview talks that I first gave at the CMU Database seminar, Machine Learning Lunch seminar and North East Student Colloquium on Artificial Intelligence (NESCAI '07). These talks naturally led to tutorials on the structure, models and algorithms for large networks, and on diffusion and cascading behavior in networks. I gave tutorials at the NATO International Workshop on Mining Massive Data Sets for Security '07 and at the European Conference on Machine Learning (ECML/PKDD '07). It was very rewarding to explain research I am passionate about, introduce new material to participants in an intuitive but still precise manner. It was a very valuable experience answering questions, bridging different backgrounds people have and making it so that everyone interested in networks learned something new. I consider it a challenge to transform difficult to understand material into comprehensible and highly informative talks that keep the audience interested and engaged. Videos of my tutorials are available online (<http://www.cs.cmu.edu/~jure/talks>) as I believe educational content should be universally available. I have also arranged with Yahoo Research to sponsor the video-taping and publishing on Yahoo Video the talks given mostly by students at the CMU Machine Learning Lunch seminar I organize.

__TEACHING__ Since my research spans multiple disciplines within computer science, I can teach classes and supervise students in a variety of areas. I would be delighted to teach any undergraduate introductory computer science course; advanced undergraduate and graduate courses in machine learning, data mining, artificial intelligence and databases. The experience from preparing and giving tutorials at conferences motivates me to work on the design of new courses. For example, at the graduate level I would like to design a course on data mining and large scale machine learning with emphasis on networked data, covering the expanding role of networks in the study of phenomena across the social, technological, and natural worlds. This will be a very exciting class, as it will bring together interesting applications, combined with state of the art computer science algorithms and theory. Also, the ability to approach and work with large data is necessary, almost universal across computer science, and it is the skill that will give students an edge in many of problems they will face in industry.

__ I am looking forward to the opportunity to teach, advise students and become a professor.