

# Teaching Statement

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Teaching has always been a key component of my career so far. I had several years experience in teaching and mentoring before my current Ph.D. pursuit, including a junior faculty position in a prestigious university in Vietnam. I started my early teaching career with a great deal of enthusiasm, learned and absorbed a lot from my teacher models (including my father), and soon developed my own teaching philosophy and methods. I had taught twenty classes in Computer Science, of small to large sizes, with good student evaluations, and had a pool of admiring students. I continue to mentor a few close students until now. Last November 20th, the (traditional) Teacher Day of Vietnam, I felt privileged to have received e-postcards from two students from Vietnam, who were in my classes in the nineties.

I am lucky enough to have had good teachers (in the past and now) to learn from, including Professors Martel (my academic advisor) and Laub (holders of various exceptional teaching honors) in UC-Davis. From them, I learned that an ideal teacher does much more than just explaining concepts, grading and assessing student progress: s/he should also know and even master the art of organizing and leading, including subtle teaching-specific skills such as how to inspire, challenge and encourage students. Towards these idealistic goals, there are so many different methods and tips I have learned about or successfully practised myself. Most recently, I have learnt from Professor Martel subtle skills about choosing and preparing material that I deeply appreciate. The way he prepares the material to teach in his class (which is on a difficult and broad area of “Algorithms Design and Analysis”) is a great effort of care, organization and anticipation, which helps him to control the class and the progress perfectly. He uses different levels of focus and depth for each topic, so he covers most important material but dedicates special treatment to topics of higher difficulty or importance. With his elaborate help, I learned and applied these skills (of choosing material and anticipating audience response) to my preparation for my first conference talk (in SODA, the premier conference in algorithms) and gained a surprising result: despite my non-native accent and first-time nervousness, I had drawn a significant audience size following to the end of my talk, which was the last of the day (ended at 6:30pm), and a number of people approaching for extra questions.

I TAed six classes during my early years in UC-Davis in discrete mathematics and algorithms. I was challenged to adapt to a new environment and teaching in a new language. Certain methods and tips I had used before seemed improper here. I figured out my problems, gradually improved, and worked hard to prepare handouts and create slides for my discussion. I asked Professor Laub, the instructor, to visit my discussion. Much to my surprise, he gave me an “A” in many areas, e.g. excellent at choosing examples, giving out questions, creating slides (with smooth flow and real-life analogies) etc. In future teaching opportunities, I also intend to classify students based on their prior knowledge and talent. This helps to customize material accordingly (with anticipation) such that I can focus more on the majority of middle-level students, but still reserve space for the top or bottom students.

Given my teaching and research experience, I believe that I am well qualified to teach classes in algorithms, computer security, introductory cryptography and discrete mathematics. I would also consider teaching classes in many other topics, including distributed systems, computer networks, parallel architectures and algorithms, operating systems and object-oriented programming. I would also like to develop an advanced class which studies real-world complex networks. This would show interesting connections between many classical and new research fields and present modern techniques in working with problems in this area.

I have a passion for the work of transferring my knowledge and of improving my teaching and related skills which I would like to use in my future career.