

Teaching Statement

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I have taught several graduate and undergraduate courses at Stony Brook University and UNC Chapel Hill. In addition I have taught a year of high school¹ and been a teaching assistant for 10 semester courses at U.C. Berkeley. Subject areas span undergraduate courses in algebra, discrete mathematics, theoretical computer science, computer graphics, computer vision, computational photography, robotics, and technical writing and graduate courses in computer modeling of curves and surfaces, computer vision, and big data. Over time my teaching has improved, and reviews of my teaching at have ranged to average to the max possible score, depending on the course and year.

In addition to traditional classroom teaching and graduate student advising, I have given talks at international conferences, workshops, universities, and summer schools around the world. I have also mentored high school students (at Stony Brook) and undergraduates at a NSF funded 6 week workshop at Johns Hopkins University's CLSP.

I try to teach using a variety of methods, as different students learn in different ways. I have gone so far as to have students physically act out algorithms (when teaching high school) made sculptures out of paper and string to illustrate graph search (theoretical computer science), assigned problem sets including hand sketching complex functions (graduate course on modeling), used computer animation (various courses), and used Microsoft's Kinect controller to simply introduce interactive 3d vision algorithms (under graduate and graduate computer vision).

In terms of teaching practice I try to motivate ideas at a high level as well explicitly working through problems. When writing assignments, if possible, I like to lead students through the process of discovering and deriving the ideas covered in a class for themselves. One example was tracing the development of splines for computer graphics starting with the problem of fitting parametric polynomial functions to data. In addition, concrete assignments that require students to work through practical problems are very important to me, especially in more abstract courses where it is easy to lose track of how an idea might be used in practice.

For all classes, but especially for upper division and graduate courses, I think it is useful for students to make presentations, and work on projects. The ability to understand and present material in written and oral form is always relevant, and should not be relegated to specialized courses on communication or writing. Extended projects allow students to appreciate how ideas interact in practice and go into detail about a specific aspect of a course. Projects allow students not only to learn but also to excel and show their own creativity. Years later students have come to me and spoken about their undergraduate projects with a smile in their eyes, for example a student remembering their project interactively animating a bicycle on a Möbius strip.

As mentioned in my research statement, I think it is important to make the results of our research in computer vision accessible to other fields. One class I would like to teach is on understanding and applying computer vision techniques from the point of view of practitioners in other fields or for those with an entrepreneurial bent. This is of course in addition to classes and seminars training undergraduate and graduate students in my area!

Some of my students are beginning to present their own work at local and international conferences. Seeing research with my students progress and witnessing their presentations has been one of the most rewarding parts of being a professor.

Over the years I think my teaching style has matured along with my own understanding of the role of education and with my exposure to some amazing professors (starting at U.C. Berkeley). In particular I have been inspired by Christos Papadimitriou in theoretical computer science, Eric Brewer in systems, and Jitendra Malik in computer vision. All communicate the complexity of their respective fields clearly and concisely, and impart their own passion for pursuing new problems and solutions. I endeavor to bring some of this ability to my own teaching.

¹at a nationally recognized magnet program, where I graduated a few years earlier.