

Teaching Statement

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I have taught a year of high school 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, and a graduate course in computer modeling of curves and surfaces. Reviews of my teaching have been good and have improved almost monotonically over time, ending up near the top of the spectrum.

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 interactive computer applications to visualize dynamic changes in geometry (graduate course on modeling).

In terms of teaching practice I try to motivate ideas at a high level as well explicitly work 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 b-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 their own 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. In computer graphics I have supervised student work on rendering, modeling, animation, and physical simulation. The 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. This is of course in addition to classes and seminars training undergraduate and graduate students in computer science!

Outside of the classroom I have given talks at conferences, symposia, and universities around the world and taught at the NSF sponsored Sino-US summer school for Vision Language and Pattern Recognition in Beijing. I have also been involved with informal teaching of junior members of our research group and been a more formal research supervisor for a visiting graduate student, all of which have resulted in submissions and some publications. These tastes of being an advisor have been some of the most rewarding aspects of my time in academia.

Over the years I think my teaching style has matured, in part because I have become more mature in my own understanding of the role of education, and from my exposure to some amazing professors at U.C. Berkeley. In particular I have been inspired by Christos Papadimitriou in theoretical computer science and Eric Brewer in systems. Both communicate the complexity of their respective fields clearly and concisely, and always impart their own passion for pursuing new problems and solutions. I endeavor to bring some of this ability to my own teaching.