Teaching Statement

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Teaching seems a natural skill for me, perhaps because most of my family members are teachers. I believe I have more teaching experience than many other Ph.D. students in the Computer Science field. In the past eight years, I have worked as Tutor, Grader, Teaching Assistant and Adjunct Faculty (Lecturer) for several different Computer Science related courses in Southern Methodist University (SMU). It gives me immense satisfaction when watching students get excited at learning new ideas from my lecture and completing big projects under my instructions. One of the perks of academic life which I would like to pursue is the opportunity to interact with young and bright students most of whom are at the threshold of stepping into the real world. It will also provide me a platform for improving my skills regarding expressing myself as well as an excellent source of research ideas.

Started Teaching as a Tutor

When I was still a Master's student, I worked as a tutor in the Altshuler Learning Enhancement Center which is the official tutoring center of SMU. I enjoyed the experience since I felt I learned more from the students instead. One time I encountered a student of the Creative Computation major who consulted me about a problem of a visual-art programming language 'Processing` which attracted me immediately by the visualizing and creative features of it. After tutoring the student several times, I mastered the language and used it to create the visualization of several graph theory algorithms. Later I even decided to continue doing research in this area pursuing a Ph.D. degree. I got the "Excellence in Tutoring" award of the year 2012.

Training Skills from being Assistant

From the year 2013, I became the teaching assistant of Creative Coding II class in the Meadows School of the Arts and Algorithm Engineering class in the Lyle School of Engineering. I am in charge of the lab sessions which requires me design and teach lab assignments for students. I need to adjust the lab schedule and content according to the feedback of students. These experiences in different schools helped to found my teaching philosophy later.

Teaching Philosophy in Current Lecturing as an Adjunct Faculty

From the year 2016, I have been hired as an Adjunct Faculty of SMU in both Computer Science and Creative Computation departments which is a great opportunity to lead whole classes and I have my own teaching assistants. The classes I lectured then are two combined undergraduate courses: Creative Coding I and Creative Coding II. The students are from several majors of the schools of engineering or art. It forces me to face students from profoundly different backgrounds. One fact you cannot ignore is the students from the engineering school have better coding abilities (or understandings), and the students from the art school have better creative design ideas on average. I will highlight the strengths of the students from both sides. What I normally do is give them weekly assignments which all have have a fundamental goal with the flexibility of add-on features as extras. Students may choose to complete the assignments with better art design characteristics or additional functionalities. The two aspects will finally improve each other since students will try to seek more coding skills to implement better creative effects and vice versa. I also tried giving some group assignments and encouraged them to pair up having one art student and one engineering student (I require each group can only have two members to fulfill pair programming which is an agile software development technique). As a result, students will normally be surprised by their partners in the different thinking mode. Such diversity is a key factor in improved student performance, and it also fulfilled the accreditation requirements. Some details of the class including syllabus can be found on this webpage: https://lyle.smu.edu/~zizhenc/source/Syllabus.html.

From the year 2018, I also become the instructor of the Graph Theory course which is one of the highest level courses for graduate students in our Computer Science department. I enjoyed the high quality questions asked from graduate students which gave my own research more new directions.

Future Teaching and Potential Courses

Because of my special research and teaching experience, I would like to teach the traditional Computer Science courses combined with visualization or creative art design. There are two main reasons for this. One is visualization skills have already become necessary techniques in current industry and research world. The other reason is my research is focusing on solving different computing problems (especially for Graph Theory and Big Data ones) combined with visualization. Visualization could help us simplifying some seemingly intractable computing problems and providing new ideas and approaches for further research. Besides, for teaching purpose, visualization is a teaching method to encourage and help students in understanding complicated computer science concepts.