Teaching Statement

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TEACHING PHILOSOPHY AND EXPERIENCE

"The mediocre teacher tells. The good teacher explains. The superior teacher demonstrates. The great teacher inspires."
— William Arthur Ward

My teaching philosophy is inspired by this amazing quote, as I believe that an excellent teacher not only imparts technical knowledge and skills required for students to forge successful careers in the future, but also infuses them with enthusiasm and passion for life-long pursuit of knowledge and excellence. To accomplish this, an excellent teacher must possess the right blend of personal characteristics, solid knowledge and research experience in apposite fields, and a consummate understanding of pedagogy.

Great teachers devoutly honor their responsibilities to impart knowledge to students. With passion, they inspire students and stimulate their interests, while continually striving for self-development and augmentation of teaching strategies. With patience, they identify and address any issues students may have and cultivate their learning and research methodologies. These virtues form the cornerstone of great teaching. My teaching experiences to date give me great confidence in my ability to utilize these characteristics for the benefit of my students. I have always received excellent feedback from my students and colleagues. Still, I am particularly proud of the fact that, as a teaching assistant, a guest lecturer, and a co-advisor, it was my patience and passion that have received the most commendations. In my co-mentoring role, I draw upon my personal research experience and my ability to visualize the practical application of our work to inspire the students. During my office hours, I am highly attentive to my students' verbal and non-verbal cues. Some students may be hesitant to interrupt me even though they require further explanation. Therefore, I often seek their input and, based on their response, rephrase my explanation or give some examples to aid in better understanding.

Teaching excellence requires that the instructor possesses a solid knowledge of the subject area. Having research experience is highly beneficial, as it allows the lectures to be augmented with the most recent advances in the field. In the Spring 2012 semester, I served as the teaching assistant for the graduate course "Advanced Topics in Power and Energy Networks". Prior to assuming this role, I had substantially improved the efficiency of a program for power system static security analysis by incorporating a more sophisticated exploitation of sparse matrix technique. Thus, as a part of the course curriculum, I gave a lecture on the topic of sparse matrix based on my research and development experience, motivating my students to engage in fruitful discussions on their topics of interest.

I believe that teaching grounded in proper pedagogical strategies can achieve twice the effect with half the effort. Thus, in order to ensure that I possess the right qualifications to respond to the diverse needs of students, I participated in the GET SET advanced pedagogy training program hosted by the Cornell Center for Teaching Excellence. As a part of this course, I not only improved my teaching proficiency, but also learned many valuable methods, such as just-in-time teaching, case-study approach, problem-based learning, etc. I have since employed some of these strategies in my teaching. As the teaching assistant for the course "Statistic Signal Processing" in the Spring 2017 semester, I worked with the professor on designing a project as a part of which students were required to submit fictitious bids to the electricity market and their profits were cleared at real prices. To construct their bidding strategies, students needed to build statistical models for electricity prices using historical observations based on which future prices could be predicted. This is an excellent example of problem-based learning, in the sense that students were presented with a real problem to which they could apply the course content.

FUTURE TEACHING PLAN

I believe that I am qualified to teach courses in the electric power and energy area as a part of the electrical engineering curriculum. In particular, I can contribute the most on courses *Electrical Power Systems*, *Electrical Energy Conversion*, *Power Systems Economics, Power System Transmission, Control, and Security*, *Power Distribution Grids,* and *Smart Power Grids*. I look forward to inspiring students with animate demonstrations of real problems, thoughtfully designed just-in-time assignments, real-world oriented projects, research opportunities, and most importantly, my unwavering dedication to my research and teaching.

I am also interested in teaching more general courses on topics such as large system analysis, distributed optimization, and state estimation theory. These subjects are likely to attract students from electrical engineering, computer engineering, mechanical engineering, applied mathematics, operations research, and other backgrounds. My research is grounded in these concepts and I am confident in my ability to pass on my knowledge successfully.

Besides teaching courses, I would welcome any opportunity to contribute to existing programs, such as undergraduate research experience program, industry practice program, and international students exchange program. I believe that I have the qualifications needed to facilitate the growth of these programs, which are crucial for broadening students' perspectives and inspiring their keenness.

I sincerely wish to have an opportunity of sharing my enthusiasm and research with energetic students with limitless potential.