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Teaching Statement

Teaching is a prominent reason why I want to re-enter academia following my industry postdoc. Sharing knowledge with students and critically discussing new concepts and ideas always presents unique and exciting opportunities for growth. As a new faculty, I admit that I am not at the pinnacle of my teaching career, but I am rather just starting. I welcome advice and mentorship from more senior faculty to improve and strengthen my teaching ability. I also welcome synthesized and summarized educator literature sources, such as Rich Felder's Random Thoughts Blog, as well as educator workshop and conference opportunities. I look forward to adapting and strengthening my teaching prowess throughout my career. Below is a summary of what I have learned so far.

I think that **the quintessential goal of science and engineering educators** is to instill their students with the insight and tools they need to always **make the best decisions possible**. How do humans make decisions? How does a particular radiologist decide that a mammogram anomaly is sufficient enough to require a follow-up appointment? How does an engineer decide on the right tapering angle for the cautery pen that will be used to excise breast tissue in the double mastectomy? And how does a medicinal chemist decide on the antibody cancer immunotherapy that will be selected for clinical trial and will control the patients' cancer for the rest of her life? Beyond the foundations of critical thinking and problem-solving, we should expose and train our students to the decisions they will eventually face so that they will innovate and thrive in their chosen paths.

- **In-class interviews of professionals**. I have found that in-person professional interviews yield deep insights. For instance, the interviewed professionals often discuss what source material and software they reference, and contrast that with the working knowledge they draw from. This information can be quite motivating for students, because it **argues why students are studying certain subjects** and how to balance reference material with knowledge that must be absorbed. The most innovative course I have ever taken was a course on medical decision-making. This uncommon course instilled in me the numerous benefits professional interviews possess for students, and galvanized me to use this technique in my courses as well.

- **Diversity strengthens.** Another matter brought up in the interviews of the medical decision-making course was **discussion of the strong ethnic and racial biases** that exist in the medical profession. Several students mentioned that members of their family did not trust doctors, especially doctors of other races. Although at times the conversation could turn uncomfortable, it was a really excellent discussion to have as the arguments for why diversity strengthens us were meted out.

- **Student-driven projects.** Overall, I have found that teaching is goal-driven and that student-led projects really help students apply and retain course material. As a TA for an introductory computer course, the goal is to train eighteen-year-olds about the underlying mechanics of their computing devices and start programming in a low-level language. Lectures and TA sessions will explain the material, homework

assignments and exams will test the material, but I find it's really the end-of-semester project that will display student potential via combining knowledge and creativity. As a TA for a senior capstone design course, I find that sometimes the **students can be incredibly driven about their design project**. The students perceive the course goal as completion of their designed product at the end of the term. However, the actual goal of the course is to expose the students to industrial design work including company collaboration, as well as the realistic consequence that designing a product is complex and takes time.

Possibly the **greatest strength of my teaching experience is the breadth** of students I have taught; I have taught incoming college freshmen and graduating college seniors. I have taught 9 year-old elementary students, their parents, and 13 year-old middle school students. They have each presented challenges and vivacity unique to their circumstances. But throughout all of these experiences, **I have caught fire in exploring with students** the limits of our understanding and discussing how we can tackle new problems.

For brevity, here are the **courses I can teach on day 1** of my first year:
1. Machine Learning Methods
2. Engineering Design
3. Molecular biophysics
4. Intro to computing/electronics
5. Immunology
6. AI in biomedicine
7. Mathematical modeling

Courses I am interested in teaching with additional preparation: Forensic engineering, Decision making, Clinical Toxicity