

## **██████████ - Personal Statement**

Pursuing higher education is a cultural challenge for any Egyptian woman, especially in an engineering or scientific field. As a child, some of my earliest memories were of watching the Apollo space missions on television, which stoked the fires of my imagination and curiosity. Throughout my education I worked hard to excel in my math and science courses, and I pushed myself to cultivate my academic abilities in non-ideal circumstances. Unfortunately in the Muslim dominated society of which I was raised, independent intelligent women were forbidden from studying the fields of science and engineering by societal and cultural norms - a conflict that has become a lifelong struggle. UC Berkeley acknowledged my struggle and published my personal story and harsh journey “An Extraordinary Step” in 2009 school yearbook.

I came to the United States with my husband in 1991. I imagined the US as the land of opportunity, dreaming of taking a step closer toward my goals. I was surprised to find that the concept of women in science and engineering was not only acceptable, it was being actively encouraged and promoted. Even when my husband continued to impede all attempts at achieving my educational goals, I held steadfast to my dreams and enrolled in a local college to start a career. I enrolled in drafting and Computer Aided Design (CAD) courses; learning all aspects of 3D modeling, which enabled me to begin a successful early career that was closely related to engineering – another unusual step for a woman from my background. One course at a time I was closer and closer to achieving my goal. However, from my husband I was treated harshly, verbally abused, and forced to withdraw from my classes. As my struggles toward advancing my education were increasingly vilified, I sought a divorce from my husband with whom I had a child – an extraordinary step for a woman from an ultra conservative society where the ramifications to this action are significant. This is not a decision that I have taken lightly.

In the face of an uncertain future after divorcing my husband in 2000, I needed to establish myself to be self sufficient in America. I started my own drafting company, “CAD Pro Technical Services”. One contract followed another and soon the work began pouring in, until I received more contracts than I could handle. I applied and was accepted to one of the finest engineering programs in the world: the Mechanical Engineering department at the University of California at Berkeley. This was to be another defining moment of my life. I had established a firm financial base, my company was growing, and I had developed strong working relationships with my clients. Although I enjoyed the fast paced environment and the balance achieved in my life as a single mother with my son, my goals lie in research and academics. In the face of encumbering the severe financial hardships of an unsupported full-time returning student and a single mother raising a son, I made the decision to give up my promising career and comfortable lifestyle, and enrolled as a full-time student. It is the decision I had to make to fulfill my lifelong goal.

Being a single mother and a full-time student is a challenge and definitely not the path of least resistance, but a foremost motivator in furthering my education is to be a role model for my son and teach him by example what it takes to succeed. My son is my partner in this endeavor, and he has grown with me throughout this process. We often study side by side; I share with him the material I study, and he is old enough to ask questions and quiz me. We share together the sentiment that although we do not have much money to live on, our wealth in knowledge is priceless.

Despite coming from an underprivileged family, I now have the opportunity to receive the best engineering education available. I desire to return the favor to young students from kindergarten through high school in similarly underprivileged communities. During my studies, I plan to provide group tutoring assistance to students in elementary, junior high, and high schools in low income communities, taking proactive steps to make a difference. My goal is to increase diversity by helping individuals from disadvantaged and underrepresented backgrounds further their studies and gain interest in the hard sciences. I am certainly able to relate to those students giving that I came from an environment where I was not encouraged nor supported in my pursuit in the hard sciences. Despite all the hardships and obstacles in my path, I have worked with great persistence and perseverance towards my goals. The outcome to my lifelong struggle and where I see my ambitions will take me next is becoming an academic researcher and professor in the field of engineering and space science, where I will empower the next generation of young men and women by sharing the most precious and powerful gift of knowledge and education.

For the past three years I have been an active member of the American Society of Mechanical Engineers (ASME), Society of Women Engineers (SWE) at UC Berkeley, and American Society for Testing and Materials (ASTM) International. My efforts were acknowledged and I won several awards, the National Dean's List, Chancellor's List, and the University of Berkeley Achievement Award upon my graduation in spring 2009. I was also awarded Lockheed Martin's scholarship and I was fortunate to win two of the NASA highly competitive internships for two consecutive years. I was given the opportunity to get involved in space science research. Those opportunities solidified my desire to pursue Ph.D program using my engineering background to better understand Mars environment in efforts of searching for life beyond our planet Earth.

For the past two years I have been a peer heavily involved in tutoring Math and Science to middle school students in Oakland schools that is directed through my education courses at UC Berkeley. I meet with five students on average twice a week to cover homework problems establishing math foundation as well as effective study habits as needed. The idea is to strengthen their basic knowledge to be able to keep up with the current curriculum. This program has been very successful and it significantly helped students passing their exit exams. As I start my graduate school next year, I hope to establish a similar mentoring program open to all engineering students who are interested in mentor middle and high school students in math and science subjects. I have seen the positive effects of mentoring in my life and on others.

I still keep in contact with most of my previous mentees and gain great joy in hearing about their successes and in helping them to get over some of the huddles the math curriculum throws in their way. The other day, two of my former mentees came up to me with their recently scored math tests. They were so proud of their grades, and I was so proud that they still wanted to keep me informed of their progress. I like mentoring and continuing in academia will allow me the time and facilities to mentor middle and high school students, and engineering students of all levels from diverse backgrounds as well. My undergraduate education has provided me with a solid foundation of Mechanical Engineering and my research experiences with NASA have allowed me to discover the excitement and satisfaction that accompanies small victories in the lab. I want to continue my life as a student and a researcher by obtaining a Ph.D. Obtaining the National Science Foundation Fellowship will allow me focus fully on continuing my education and research career without the worry of finding funding.