Statement of Purpose

To whom it may concern,

"If numbers aren't beautiful, I don't know what is." *Paul Erdos (1913-1996)*

I have always believed that mathematics is an important factor in life. All human activities in several fields such as economics, physics, social science and so on will run well if they are defined in a proper mathematical framework. Mathematics is a genuine reflection of life, all based on definite logic, and ironically very simple principles. As we discover it further, it includes indeed the most complicated, yet real patterns inspired by the nature and the world we live in.

In my opinion, the more essential knowledge one acquires, the easier he can lead a full and enhanced life. Nowadays, one's expertise to a better world would require as much adherence as possible in a variety of topics and the capacity to relate them. Mathematics is a multi-purpose tool which realizes this goal, as it gives an intellectual, vivid astuteness and innovation to every mind. These are what mathematics has equipped me with over the years.

The mathematics has always intrigued me to the most certain amount. As an 8-year-old, I took so much pleasure in numbers that I would walk around for hours calculating in my mind. I was always very bright in understanding concepts of mathematics, and every year I participated in national contests in my country, Iran, in my own level. I would get honors, among them being second and third in the city of Tehran in different years, and it led me to have further education during my school years as an exceptional talent in this field.

To enter public universities in Iran, which are highly regarded in and out of the country, every student has to pass an entrance exam at the end of 12 years of study. I participated in this exam in the year 2006, and I was admitted to enter universities, since I managed to be 320th out of approximately 300000 participants. I chose **University of Tehran**, which is the oldest and the best university in Iran, having been ranked highest Iranian university in all rankings conducted around the world for many years. For my major, I opted to go with Electrical Engineering, as it is extraordinarily enriched with mathematical topics. That is to say, mathematics constitutes the basics of every engineering science, and most of all Electrical Engineering. During my education, I redirected my enthusiastic endeavors to in general comprehension of electrical concepts, including *Electrical Circuits*, *Electronics*, *Power systems* and *Telecommunications*, for all of which advanced perception of mathematics comes first in understanding the whole idea. As mathematical prerequisites, *Calculus I & II*, *Differential Equations*, and *Statistics* helped me gain more insight towards various disciplines.

At the end of my second year, I devoted my further studies to Control engineering, which is a multidimensional, interfaculty field based on mathematical methods and concerning the manipulation and optimization of industrial and financial processes. Considering the undeniable applications of mathematics in Electrical and control engineering, I have gained the utmost satisfaction of studying in these areas, from which I can proudly refer to topics of *Engineering*

mathematics including integral transforms, *Fourier and Laplace analysis*, *control systems including theory of state space*, *Operation Research* and *advanced Algebra*. What's more, as my current academic thesis I focus on Optimal Portfolio selection, which is composed of implementing and comparing two different approaches to reach a certain goal in the field of finance. In addition to my fierce appreciation for mathematics, during this project I have attained a rich awareness towards its efficient applications.

Considering Italy's appetite for science, and the esteemed status of **Politecnico di Milano** all over the world, I chose Italy as my destination. On the other hands, Italy's enriched cultural society affirmed my initial fascination with this country, and the tremendous opportunities that Italian universities offer students with different backgrounds captivated my mind and ambitions. These unique circumstances motivated me to apply for a Master's Degree in **Politecnico di Milano**, which holds a highly-regarded position among academic institutes worldwide. Besides, my lifelong passion for Italy grew more immense in time and it led me to study its diverse aspects. Consequently, I studied Italian in **Scuola Italiana di Pietro Della Valle** in **Tehran,** and therefore my proficiency in Italian can also facilitate my life as a committed scholar in Italy. Should the courses be in English, I shall face no problem as my English will also act as a powerful asset. In addition, by studying at the **Polimi**, I would obtain the opportunity to expand my knowledge in a variety of directions which would all be ultimately governed by the profound influence of Control Engineering.

Since **Politecnico di Milano** specializes in engineering sciences, my education in the **University of Tehran** would be very relevant and worthwhile for a more technical approach towards a practical, future-oriented career. As a consequence, I would like to pursue my career as an engineer and deepen my academic aptitude as a researcher by moving to Milan to follow the MSc program on Mathematic Engineering. In a word, the courses would all lead me to a future in which I have a wider range of possibilities and chances in order to either continue my education for a PhD degree, or achieve a more unique and functional method to use mathematics in quest of a specific target in numerous domains.

In conclusion, what I most certainly would obtain by studying Mathematics in **Politecnico di Milano**, is not only formal education in a field that has interested me for a long time, but also an effective way to develop my knowledge and abilities so that I could be more well-informed and competent, both in research and practical areas.