**Applied Program: Mechanical Engineering**

**(Fluid Mechanics, Heat Transfer, Thermofluid Dynamics.)**

The results of industrialization and urbanization are always two-folded in the history of human civilization. Improvements of living conditions are always made at the cost of serious damages to the environment in which we exist. The unremitting efforts of scientists however are destined to upgrade instead of degrading the quality of life by developing and applying all possible types of latest technologies. As one of the resorts taken to serve such improvements, Heating Ventilation and Air-Conditioning is a subject mainly focused on the research, development and application of the latest technologies for engineering, construction and supervision of heating, ventilation, gas supply and air-conditioning works for structures of various nature. The more we know about this subject, the more potential benefits that will be secured for the future of the world.

I would not be able to get such a clearer picture about the subject without five years of college studies and research on the major. In the National College Entrance Examination in 1997, I worked all my way up to be enrolled by the College of Architecture Civil Engineering affiliated with Beijing Polytechnic University, an institution famous for design and research of buildings and architectures. It takes five years instead of four as other ordinary majors to complete the programs designed for the major. My first four years of college were dedicated to the fundamental theoretical studies of engineering thermodynamics, fluid mechanics and fluid machine, heat transfer and industrial ventilation, and in the fifth year, I was selected by the Principal to co-research in the labs of the University.

Generally, Chinese students are good at studying for examinations. But, I’m an exception. What I have as a science student is a strong interest in scientific issues and exceptional experimental skills. The results of a test of comprehensive qualities conducted in the College in the fifth year when practical capabilities were more highlighted than theoretical knowledge show that I stood second to one in the class.

When I was practicing in the Engineering Department of Beijing Xin Dong An Group in the third year of college, I came to realize that my theoretical storage was a bit insufficient. I then started to build it up gradually and systematically such that I made a very good achievement in the fourth year test. I was subsequently engaged in a research job funded by Beijing Municipal Equipment Installation & Engineering Company. It was at this point of time that I started to understand the joy and significance of a real scientific engagement, and I felt an overwhelming desire from the bottom of my heart to explore the scientific world for the purpose of benefits to mankind. Because of my excellent performance, the tutor decided to assign to me the final and probably the most difficult section of the research. The assignment became the theme of my graduation thesis.

As a result of one year’s pains-taking efforts, I finally produced a sectional friction coefficient table for 4-way adjustable tubes that are applicable to the engineering practice, as well as a computerized simulation formula applicable for such tubes. Adjustable 4-way air tubes are generally used for the air-conditioning works in Beijing, while no friction data or fluid features have ever been maintained and made available for the engineering design purpose. Therefore what I have produced during this research work would serve to fill in the gap. Accordingly, my graduation thesis, titled Experimental Research on the Adjustable 4-Way Sectional Friction (Non-Symmetrical), was ranked the Excellent Paper in the College. The thesis will soon be published by the professional journal Heating & Ventilation of Buildings, and the friction coefficient table will also be introduced into the Manual of Design of Heating, Ventilation and Air-Conditioning Works.

Independent analytical styles, enduring patience, practical attitude and daring enthusiasm are the requisite qualities of a scientist. Starting from the very beginning of my initial scientific research, I would hunt for all sorts of necessary references all on my own, modify the experimental programs, process the data in the best manner and carefully and strictly complete the graduation thesis. Meanwhile, I learnt how to use matlab by myself, which I applied to produce the simulation curve of the tests, calibrate the differences and establish a mathematic module for the experiment.

For three months of data collection, I used to spend at least 12 hours a day in the lab, where I did my job and took the meals. After I finished the job in the lab, I’d spend several hours, no matter how late it might be, reading viscous fluid mechanics, computable fluid dynamics, Chinese journal of HV&Ac or American Ashrae Journal. I still remember it was winter in Beijing, cold and no heating in the lab. Blowers kept working all night long, and the temperature inside the lab was no higher than 50C. Deafening and cold in the lab, I’d firmly hold the pitot to take the measurements on the freezing pipes. I’d stringently follow the rule to take the same group of data twice, in case of any discrepancy of the data, I would repeat time and again until I got the right one.

In the college days, I used to be very active in practice and public welfare undertakings, such as protection of the extinguishing Tibetan antelopes and participation of various artistic groups and English Saloon of the University. In 2001, I was a volunteer for the 21st Campus Sports Games hold in Beijing.

I graduated from Beijing No.31 Middle School, which is also the old school of Dr. Yang Zhenning, the world famous Noble Prize winner for physics. The fervent patriotism and creative styles of the laureate has been so much encouraging to me ever since I was a middle school student. I spent three months in the library of the University searching through ASHRAE Transactions published since 1950, only to realize how poor my knowledge is and how backward China is in respect of engineering technologies. As far as heating and ventilation is concerned, China staggers behind the rest of world because we are not well established in the basic science such as fluid mechanics and heat mechanics.

I have been extremely interested in these fundamental subjects. To contribute all that I have learnt in order to help improve the living standards of my fellow Chinese, and to serve the great cause of developing China’s construction industry, aerospace industry, energy technologies, marine and high speed rail transportation, and environmental awareness, I have to go abroad to pursue a higher education program in the field of fluid mechanics and heat mechanics.

University of Toronto, the esteemed institution I am applying for, is one of most reputable Canadian universities in terms of the academic resources and the achievements it has ever made particularly in the field of engineering research. I’d highly appreciate if my application were seriously considered. I can not wait to further pursue ph.D programs after a master degree has been obtained in your esteemed institution. With all my love for my country, I will return home, which I’m so proud to serve.