**Applied Program: Electrical Engineering /System and Control)**

My deep interest in Electrical Engineering has provided me with a focus to my life that many people search a lifetime for but never find. XX University’s Ph.D. program in Electrical Engineering is the perfect fit for my aptitudes and for my future career as a university professor and professional researcher, and it is my sincere desire to continue my studies at your honorable university.

At the beginning of my university studies I was searching for direction.  I tried many different areas including electric motor control design, and I conducted research on micro-motor drive controls.  I learned to develop a sound, methodological approach to control circuit design.  This area was underdeveloped in China, and initially it seemed that I had found my focus.

After graduating from university, I went to work for XX, one of the best and most progressive companies in China.  As an engineer, I learned the latest technologies in micro-processing systems, personal responsibility and teamwork.  But the longer I worked at XX, the more dissatisfied I became.  I found that the work was repetitive and techniques were simply copied from others – there was little room for innovation.  Discouraged, I knew that I needed to find another direction where I could pursue my own creative development, so I returned to XX a research assistant in the Advanced Control and Simulation research laboratory.  Using C language and Matlab, I worked on flight system simulations, automatic drive modeling and system identification, but as I studied and worked at XX, I realized that what I was learning was too limited and out of date.  I became even more determined to study abroad.

Currently I am working towards my Master’s Degree in XX, where I have finally found my motivating field of interest.  My major is in the theory and applications of nonlinear control, which involves research into the ability to control systems while making them more human.  With only four classes in graduate school, I have done a tremendous amount of outside reading in the field of nonlinear control.  Furthermore, writing papers, reading books, and working as a teaching assistant have inspired me to pursue a career in academia.

In addition to outside reading, I have also attended many conference and workshops where I have had the chance to listen and learn from many prominent scholars that has further motivated my research and study.  For example, I attended the Symposium on Automation Science and Engineering in China, the XX Conference (as a volunteer), the XX Congress on XX, and the XX International Symposium on Complex Systems.  All of these events have only deepened my interest in system and control.

I am working on my thesis in the field of the application of output regulation methods to altitude control and disturbance rejection of spacecraft.  I have just passed my yearly oral presentation.  Most papers in this field use adaptive methods to deal with uncertainties and gain global convergence, however, the adaptive method cannot guarantee asymptomatic disturbance rejection – at most, it can gain disturbance attenuation.  I used output regulation theory to formulate the problem and then solved it with the associated method.  The global robust control problem with uncertainties could be solved in this way and I was able to achieve disturbance rejection the very first time.  Although only my first paper, it may be published for the highest-ranking academic conference in the field of Control in China.

The study of nonlinear systems has met with great difficulties, including the solvability of the global robust stabilization problem, global output regulation problems etc.  I want to use my strong research abilities, my professional knowledge, and my deep motivation to find progressive solutions.  I would also like to apply the current nonlinear control theories to practical systems such as spacecraft control, ship path following, robot trajectory control etc.  My education has given me strong motivation and a clear sense of purpose while my diverse experiences have broadened my horizons and stimulated my mind with an intense desire to succeed. I am well grounded in engineering and I have taken many related courses, such as circuits, electric motors, spacecraft, robots, intelligent materials and neural networks.

One reason that I am very confident in my abilities is that my supervisor in the Chinese University of  XX, through a rigorous screening process, was recently selected as an IEEE fellow – the highest honor for an IEEE member.  This professor has not only encouraged me but also enthusiastically endorsed my application to your Ph.D. program.

The United States is the world leader in technology and education and where I can best apply my talents to reach my full potential.  Polytechnic University’s Ph.D. program is highly attractive to me because of its reputation, diverse student body and excellent teaching faculty.  I am familiar with Professor XX, who is a friend of my supervisor – in fact I attended his short course earlier this year.  We share very similar research interests and I look forward to working him within your program.  Furthermore, XX’s laboratories in Control and Robotics and Control and Telecommunications Research fit perfectly with my research and future career interests.

My personal attributes include great originality and creativity – I am not afraid to face challenges.  I have an indomitable willpower that helps me to overcome difficulties and an enterprising spirit that helps me find innovative solutions to difficult problems.  I am brave in facing my shortcomings and good at self-analysis, self-correction and self-stimulation, which has helped me to become successful in the past and will lead to me to even greater success in the future.  It is my heartfelt desire that I may continue on my path to success within your esteemed Ph.D. program.