**Applied Program: ECE (Electronic Control Engineering)**

A lot of myths have been created about child prodigies, most of whom prove mediocre when they become adults. In China, there is a special place which train child prodigies not to end in mediocrity but in sustained excellence—XX, the University of XX. Having been a student from such a class, I would like to scale new heights of academic excellence by applying for a Ph.D. program in Electronic Controls from the esteemed XX University. I am not interested in being a child prodigy but in developing myself into an academic leader in tomorrow’s Electronic Controls research.

XX has produced the first generation of leading scientists of the People’s Republic of China, who in turn advocated the establishment of the XX, with special support from the central government. What is special about XX is that it is a 5-year program instead of the usual 4-year program; its educational system is completely integrated with western system, with a unique curriculum, teaching programs, emphasizing the study of foundational courses of mathematics, physics, English, information science, interdisciplinary subjects. Students are encouraged to participate in advanced student research programs, involve in seminars and join faculty’s research projects. Above all, students are taught to cultivate innovativeness and team spirit.

In this exceedingly competitive environment, everyone tries to be the better of the best. I am no exception. My entire undergraduate program in electrical engineering can be divided into three distinctive stages. For the first two years, I allowed my academic interests to develop freely by choosing a wide range of subjects so that I managed to lay a solid foundation. I liked to attempt at some tentative experiments through computer simulation, and program software to process experiment statistics so that I could improve my hands-on abilities. As I entered the third year, I started to focus on signal processing as my major and paid special attention to develop my computer skills. In one semester I took ten courses. But my hard efforts paid off. My GPA reached 3.24, ranking among top 20% among a total of 84 students.

My real academic development happened in the last two years, when I was recruited in Oct. 2002 into the Communication and Signal Processing Laboratory of our university. There I attended many presentations, received technical trainings particularly designed for lab’s new comers, read a large quality of scholarly journals and technical literature, and cooperated with some outstanding doctoral and Master’s students in the lab. Since Feb. 2003, the director of the lab offered me an exception on account of my strong mathematics background by allowing me to participate in the regular seminars for doctoral students to discuss matrix theory and its application. On one of those seminars, I did a thematic presentation regarding the norms of vectors and matrices, which was warmly received. As an undergraduate, I made full use of those rare opportunities to cultivate my research potential.

By far, my most important research achievement is my thesis that I independently completed from Jan. to August 2003. Entitled XX, my thesis offers an in-depth analysis of the statistical characteristics of the amplitude phase position of the analog modulated signal under the AWGN interference. Based on this, I presented the new key feature values and the value threshold, with a study of the statistical characteristics of the values. Finally, I incorporated the novel idea of soft judgment in accordance with the large number principle and central ultimate limit principle. Unlike conventional algorithms, my algorithm took into account the effect of noise, applicable to low Signal/Noise Ratio (SNR) above 0db; the idea of soft judgment is absolutely original. Scored 95 /100, my thesis was given highly positive comments from my advisor who has recommended it to a leading scholarly journal for publication.

Since September, I have been engaged in XX. My responsibility in the research group is to simulate the process of the multi-resolutional detection of the watermark and select different threshold to analyze the error probability. The research group consists mostly of doctoral students from whom I have derived useful research experiences. By working in close collaboration with them, I have learned the importance of making concerted efforts for the fulfillment of a common objective.

To undertake your Ph.D. program in electronic controls, I believe that, apart from my ample research experience, I have two unique advantages. First I have an unusually solid foundation in mathematics. My academic transcript indicates that I have excelled in Analysis Mathematics, Linear Algebra (whose textbook, written by senior professors of XX and Chinese Academy of Science, is said to be the most difficult in Asia), Ordinary Difference Equation Methods in Mathematics and Physics, Probability Theory, Mathematical Statistics, Stochastic Process, and Discrete Mathematical Structure. Your program in Electronic Controls poses very high requirements on the student’s mathematical aptitudes and my talents in mathematics will make me a strong candidate for your program.

Next, as a student of electrical engineering, I have studied most of the specialized courses as required by your program. As a matter of fact, the courses in my undergraduate specialty of signal processing overlap heavily with your curriculum. My academic performance in Signals System (mostly about Fourier Transformation), Digital Signal Processing (which analyzes discrete signals and systems), and Statistical Analysis of Signals has been well above average. At present, I am self-studying several subjects on electronic controls. With those necessary preparations, I would like to identify Prof. XX as my potential advisor because the coursework I have done in the above-mentioned fields is extremely relevant to the Discrete Events Systems that Prof. XX specializes in.

Among several XX universities that I apply for, I prioritize on XX University. As one of the three most prominent universities in XX, your university has enjoying increasing academic reputation, especially in the field of engineering. Among a wide variety of research programs offered by the Department of Electrical and Computer Engineering, the largest department in the XX College of Engineering, I am most interested in Electronic Controls. I will first undertake a research-oriented Master’s program. I will start by taking specialized courses ranging from Control Systems II, Nonlinear Control Systems, Discrete Event Systems, Systems and Optimal Control, Identification and Adaptive Control, Stochastic Control, to Advanced Control System Design. Through coursework in those subjects, I expect to enrich my theoretical knowledge in Electronic Control. As my undergraduate research focused on Pattern Recognition, I believe I am well grounded for my future studies.

The past century witnessed the entire process how the subject of control has evolved from the primitive use of feedbacks in windmills and steam engines to the modern theory and application in telecommunications and space process industry, with new components of digital computers. It represents a rather challenging discipline. It is my wish that I grow as this discipline itself grows.