**Program: Wireless Communications**

I have a long-cherished interest in communication and this interest has been shaped and enriched by a number of important factors. In the first place, it is related to my experiences since childhood. The hand set telephone that my grandpa used (primitive as it was), the beeper my father used, and the first generation of brick-shaped Motorola mobile phone my uncle used, all of them captured my imagination and I myself derived great pleasure from creating various telephone models. In the second place, I have developed a very strong background in mathematics and physics and I believe such a background can serve as an essential foundation for studying communications. Finally, the rapid development of the communication technology, especially that of wireless communications, promises fascinating and endless possibilities in the years to come and it is my conviction that to become part of this exciting process will be the best way to exploit my talent and potential in communication and to realize self-actualization. In contributing to social development through working in what might be the most promising industry of the modern world, I may achieve successful personal and professional development and grow as this promising industry grows.

My present decision to apply for a Ph.D. program in wireless communication, concentrating on digital communication, informatics and coding, is backed up by a strong academic background developed through my undergraduate and graduate programs. My 4-year undergraduate program was completed at the Information and Communication School of XX Engineering University (having the sole teaching base in electrical engineering and electronics among all the colleges and universities in Northeastern China), majoring in communication engineering. There I was exposed to some of the most fascinating courses like digital circuit, electronic circuit, and analogue circuit. In studying digital circuit, I found it a sheer wonder that several small pieces of flip-flop registers could perform so many important functions, creating a world of magic that seemed to fulfill my childhood dreams. In my study, I did not resort to simple memorization of factual knowledge but relied on constant contemplation and reflection. In this way I came to develop an in-depth understanding of the meaning of such knowledge as frequency hopping communication. My dedicated efforts in coursework paid off in a 3.5 GPA, with excellent performance in most specialized courses, with the score of 99/100 for the analogue circuit course. Another indication of my academic excellence is three first-class (5%) and one third-class (20%) scholarships.

Even as an undergraduate, I attempted as some tentative research. I chose XX and XX as the topic of my graduation project. In this project, I simulated two interfaces by using VB software to realize the graphic presentation of the working processing of the signaling. Through undertaking this project, I deepened my understanding of the special importance of signaling in communications.

My theoretic knowledge and practical application ability have been further enhanced through the Master’s program (Sept. 2002- July 2004) I have been pursuing in the specialty of Communication and Information System at the XX. Apart from many advanced courses in information theory, I have devoted most of my energy to experiments and specific research projects. In the first year of my program, I participated in the development of a project on frequency hopping communication led by my supervisor. In it, I adopted the plan of using the relatively sophisticated DDS+PLL frequency synthesizer and designed a broadband frequency hopping system. The system organically integrates the advantages of both the DDS(Direct Digital Synthesis) and PLL(Phase Locked Logic) and produced results far beyond those by a single system. My supervisor demonstrated his due appreciation of my strong hands-on abilities.

Another major research project I have participated in is the research on the signal channel coding technology in trunk communication system. The signal source as used in signal channel coding design comes primarily from speech coding, thus speech coding is the central part of the entire system design. I have been responsible for performing various algorithms from which to determine the final algorithm for speech coding. Finally, ACELP (Algebraic Codebook Excitation Linear Prediction ) was chosen and I also studied the sensitivity of the ACELP coding and the design on the signal channel coding for the voice communication business in trunk communication system.

Currently, I am working on my research topic of my Master’s program—XX. As little research has been accomplished in the voice/speech processing in China, I will be performing some of the most important pioneering work. In addition to doing my own project, I have assisted my supervisor in editing a book on Digital Signal Processing and I was independently responsible for the 20-page chapter on Adaptive Filters. In editing this book, I systematically summarized my past knowledge and reinforced my understanding of the subject on my own part. Off campus, I have accumulated an important teaching experience. I worked from March to June in 2002 as a part-time teacher of the course Fundamentals of Electric Circuits at a technical school in XX.

Fully aware of the importance of extracurricular activities to my personal development, I have made conscious efforts to important extracurricular duties. In my undergraduate program, I was the commissary both of my class committee and of the departmental student union in charge of academics. I launched two major English speech contests which improved my organizational and interpersonal skills. I was the full back of the class soccer team and this role helped me realize the crucial importance of teamwork. My comprehensive personal development won me important accolades—two Outstanding Student honors and two Excellent Student Leader awards.

My nearly 6-year education has adequately familiarized me with the knowledge in the field of communication, a field I was curious about as a child. In order to go beyond mere curiosity and to attain professionalism, it is imperative for me to pursue more advanced education abroad. There are two underlying motivations for this decision. On one hand, my theoretical knowledge and practical skills in communication and information systems will prove seriously insufficient in the near future without a more advanced program, as communication theories and technologies are among the fastest of the upgraded knowledge. On the other hand, through an exchange of views with Prof. XX from XX Company, I have come to realize that, although in recent years the communication technology has achieved much headway in China, it still lags considerably behind advanced countries like Japan and the United States. It is necessary for me to keep myself abreast with the latest technology in such a country.

Founded in 1919, XX is a leading research-oriented public university in the world. Its Department of Electrical Engineering boasts of unparalleled academic strength, with more than 50 senior professors, and a total research funding of $20.8 million. Its objective is to impart and consolidate basic knowledge in communications and to encourage graduate students to undertake creative research specifically geared to the needs of the industry, the government, the community and the science itself.

Determined to receive the most comprehensive and rigorous academic and practical trainings through your program, I expect to be equipped with the latest knowledge in Digital Communication, Information Theory and Coding. I believe that my interest in those three diverse fields can be fully satisfied because a remark on XX’s website confirms that I have made the right choice in prioritizing on your esteemed university, that “Few universities in the world offer the extraordinary range and diversity of academic programs that students enjoy at XX.”