**Applied Program: Electrical Engineering**

“Enjoy your coffee”, it is the fashion of popular culture in China today, which means a life style enjoyed by people of high quality and taste. But coffee is nothing of that to me. When I was a third grader, I participated in the National College-Student Electronics Design Contest, which is the highest of the same sort. The participants must work round the clock in order to finish the project assigned by the organizers within 4 days and 3 nights. When extremely tired, I would keep coffee powder in my mouth so that I could be stimulated and energetic. Finally, I finished the designing of the project at the appointed time with good quality. I also wrote a paper demanded by the organizers about the project. I succeeded in the oral defense and won the third prize among students from hundreds of universities. In a sense, it was coffee that had secured for me this meaningful achievement of my life.

I entered college when digital communication was developing at a fast speed. The rapidly changing information technology aroused my tremendous interest in electronic science and engineering. Study of such courses as computer theories, digital communication and computer network opened the gate for me to the treasure house of knowledge and determined the directions of my life’s career. My inborn diligence and intelligence made me the only freshman to join the university’s key laboratory, the laboratory of digital circuit technique, and started my specialized research. The work in the lab didn’t obstruct my own studies. On the contrary, it inspired and enlightened me on the essence of the courses of my major. During the whole period of my college years, I was able to keep excellent academic record and remained among the top five in my department. I was awarded scholarships every year.

Upon graduation, I became a researcher with Digital China Limited, a company belonging to the Computer Institute under the Chinese Academy of Sciences. My work covered the research and development of network equipment and that of its related protocols and applications. My initial work was mainly to realize the protocols and to simulate functions. That is, transform the language description of the protocol standards into the codes in programs, including the structural designs and the realization of the interface such as FR, DDR, etc. My mastery of those basic skills enabled me to develop a deeper understanding of the structure of the router system. They constituted the sound foundation for my later-day work and became an important part of my overall professional experience.

When I was given the first project, I didn’t have source code as reference and a complete standards for protocol (there should be 3, but I could only find one), but I generalized the rules according to on my knowledge of FR and by referring to other Routers’ standards and their status changes. After numerous improvements of the data and permutation and combination, our product achieved success. It enabled us to cooperate with other international products like FR, even with the first-class Cisco, not only in protocol compatibility but also in control regulations. FR has been successfully used in many places inside our country, the countryside credit union in Hebei Province, the long-distance but station in Zhang X X, to name just a few. Ddr won the tender among all the bidders in the application of Changchun public security system. I created my company’s sale record by selling 180 sets for one sale.

It was precisely because of the above-mentioned accumulation of knowledge and experience, as well as the improvement in my comprehensive understanding concerning the structure of the router system that I was made responsible for undertaking a most challenging job—to improve and to enhance the stability and the packet-forwarding rate of the router, two most important factors in the functions of a router. It is widely known that when the router forwards data packets at the linear velocity, its output curve will become unstable, even resulting in reduced efficiency and complete shutdown of the computer. To solve the problem, I made analysis in the following aspects: the data entry, the matching of the router diagram, packet-forwarding, output, the various stages involving the forwarding of data and the related operations of internal storage (内存操作)，After numerous test and verifications，I ultimately located the problem, which had bewildered us for a whole year. I discovered the reason why we couldn’t stabilize the system. With the solution of this problem, we made our router as good as any one of the same kinds in the world in terms of duration and processing of large amount of data. Based on that, I implemented the zero copy mechanism and the combination of interface tasks for reducing time-consuming task switch, adjusted the router matching strategies, which increased the router’s packet-forwarding rate and considerably reduced the fluctuations of the data output curve. My unique ability in analysis and solution of problems in work won me the trust of the leaders and senior engineers. Since then I have been the trouble-shooter of the company’s Research and Development Center. Whenever a problem arises in the work I am asked to handle it.

Nevertheless, I was aware that we were only involved in the development of middle- and low-end network equipment. In order to achieve higher-level development, as the key member of the R & D Center, I was put in charge of setting up a preliminary research team to develop the high-end/high-power network equipment. Specifically, I was responsible for formulating a rational plan concerning the framework of this high-end equipment system. After extensive investigation, I chose to focus on the high-end router/switch with NP as central technology. For nearly one year, I was involved in the preliminary research and evaluation. I made detailed and comprehensive studies of the Motorola c-5, Intel ixp，IBM Powernp.

In carrying out this project, I unmistakably perceived the gap between China’s technology of network processer and that of the advanced countries in the West. Many companies, enterprises and educational institutions in the world, especially those of the United States, have done extensive and thorough studies of NP and it is widely applied. A large number of research papers have been written about it. In contrast, very few companies in China know and employ this new technological product. We only see it reported in press. Due to technical difficulties, few Chinese companies and research institutes dare to venture into the development of the core high-end equipment. As a result, China mainly relies on importation to obtain NP, a fact which saddens me very much.

I am saddened by another discouraging fact. When China imports network products, it rarely imports sophisticated equipment. What we have bought are outdated products. The U.S owns the most advanced network technology in the world. I have just attended the Forum of Asian Intelligent Network Development. In my discussions with experts from other countries and from what I learn from the Internet, I know that many companies have already started research on the next generation of network processor, those more powerful 10G and 40G NPs based on augment risc and tailor risc. The companies like Intel, Motorola, and Lucent that attract me so much are all sponsoring laboratories of American universities. Therefore, the American students are more exposed to new technologies. That is the opportunity I am longing for. I believe that the time has come for me to increase my creativity and professional level in a prestigious university like the University of Berkeley, with its powerful faculty and rich research resources. I hope that China can soon rise to the internationally advanced level in its IT industry, and I have the earnest desire to make my contributions to that cause.

In my future Ph.D. program at Berkeley, I would like to focus on the following fields as my study and research interests: a. computer network; b. data communication; c. real-time embedded system. I believe that my academic background and my rich professional experience are my great strengths in my application for admission into your program, whose research-intensive training is best geared to my needs. It will give me a most rewarding education that will prepare me to become a leader in tomorrow’s network technology. I will undertake my program with my usual dedication that may prove myself worthy of such a renowned university as Berkeley.