My research interests include a host of fields, such as wireless communication, digital system, coding theory, computer networking, operating system, robotics and AI. I have been dreaming of becoming an outstanding engineer or a prominent scientist since my childhood. After I went to the college and started to accept some basic education on electrical engineering and computer science, the desire became overwhelmingly strong. However, due to the limit of my vision, I am still ignorant about the thrilling changes that are happening at the edge of the academic community. I want to accept some rigorous scientific trainings and push outward the boundaries of the scientific kingdom.

Throughout my undergraduate and graduate career, I had done quite a few engineering projects. The first one is a program for controlling and monitoring the high-altitude balloon-borne gondola. I developed the program on my own using LabVIEW. The purpose of this program is to provide a more user-friendly tool for the analysis of the ambient environmental and status parameters of the gondola. To that end, I designed a simple protocol for the communication between the program operating on the ground PC and the embedded computer on the gondola. The program unpacks the packets sent back by the computer on the gondola and shows its parameters, including current, voltage, acceleration, altitude, etc. in numeric or waveform format in real time. Through the quaternion to Euler conversion, the attitude of the gondola is displayed in 3D form, making it more straightforward to see how the gondola swings during its flight. The second project I finished is the design of a dual-core flight control computer. I adopted a DSP-FPGA dual-core architecture and completed the hardware design all on my own. The product is a PCB circuit board used for the solar-powered UAV. The last project I took part in is an attitude control program used for the balloon-borne gondola. I migrated UCOS-III to the STM32H743XI processor and completed the hardware drivers for each part.

In the last year of my postgraduate career, I conducted an internship in Qualcomm and later I became a formal employee there until now. My job in Qualcomm is a Modem software engineer. I worked in LTE L2 team, which in Qualcomm mainly deals with PDCP, RLC and MAC layers of the LTE protocol stack. My job responsibility is to join Qualcomm chipset off target implementation, (i.e. code logic verification) and debug from L2 perspective. I also provided technical support and solutions for issues reported from testing teams and customers, and participated in Qualcomm 5G NR/LTE modem L2 software design and implementation. On the control plane, L2 deals with RRC layer upward and physical layer downward, so I also have some basic knowledge of signaling process, physical channel, and network scheduling. On the user plane, L2 deals with IP layer upward, so I learned a lot about computer networks, mainly TCP/IP protocols, in order to understand how the lower layers transmission can affect the performance of the network throughput in high layers (e.g. TCP/IP). One of the biggest challenges I confronted in Qualcomm is the implementation of ENDC (i.e. E-UTRA NR Dual Connectivity) in modem. With the deployment of 5G, one of the key points is to incorporate the 5G network into the legacy LTE network architecture so that the

benefits of 5G, such as broad bandwidth and high throughput, can be relished while preserving the conventional LTE network to keep wide coverage. There is, however, a tremendous gap between the throughput of NR and LTE, so it becomes quite tricky to handle data transmission from both sides (split bearer in technical term). When considering handover, there are a variety of scenarios relating to bearer switch, such as MCG to SCG, SCG to MCG, MCG to split bearer etc., which compound the complexity of the software architecture design and code implementation. Currently, my work involves the code implementation of LTE L2 handling data from different bearers, whether they are split, MCG or SCG type. My work target is to make the data transmission in Modem have lower latency, higher security and larger throughput.

My undergraduate and postgraduate career, plus my internship and work experience, have laid me a solid theoretical foundation and widen my horizon on electrical and computer engineering field. I have basic knowledge of computer networks, wireless and digital communication, operating system, VLSI and so forth. I have also mastered a variety of engineering skills which might be conducive to my future research, such as C, C++ programming, operating systems, PCB layout, ARM, DSP, FPGA etc.

I enjoy tackling interdisciplinary technology challenges that entail hardware, software and algorithm. I want to address some of the complicated problems confronting the computer networks and wireless networks today. And now I cannot wait to devote myself to the cause of science.