Personal Statement

Before college, I worked hard to get admitted to the best schools, like when I was admitted to the best high school in the province with one out of a thousand acceptance rate. However, despite my ambition, I still was unsure about my career path. When I went to college, I was able to decide for myself what I wanted to do, and due to my ability to take on challenges and overcome difficulties, I became the person that I am today, and I am confident that I will succeed in a PhD program.

Compared to most of my peers, my choice of career path has experienced quite a lot of twists and turns, and I found I have always ended up choosing the harder path. In addition to my degree in Mechatronic Engineering, I chose to complete a dual degree in Computer Science as a sophomore at the University of New South Wales (UNSW). Such a courageous move was enlightened by two factors: the first is my outstanding potential and passion in programming discovered as a coding novice in the Introductory C Language course. The second is a speech of Lei Jun, the founder of Xiaomi corporation, delivered at Wuhan University's 2015 commencement ceremony. I encountered this video as a freshman in university. He explained how in his undergrad years he discovered his dream of bringing benefits to everyone in the world through technologies. He also mentioned how he overcame some difficulties and continued working toward these goals in the next thirty years. His unremitting endeavor to achieve his goal with concrete steps, like finishing undergraduate study in two years, motivated me to study one more course than usual full-time coursework workload in some semesters. Although later I found that becoming an entrepreneur is not the only way to democratize science and technology, and pursing a Ph.D. might be a better fit to my personality and goal of constructing AI infrastructure to democratize ML, this speech has been motivating me ever since to stick to my pursuit.

I'm always up for challenges, because I believe the old wisdom that *the right thing to do and the hard thing to do are usually the same*. In my academic study, I chose those most difficult courses nearly every time if different difficulty-level courses were offered on the same subject. Same for the electives, although sometimes I may have sacrificed my GPA, I still graduated with first class honor from UNSW. An example of these challenging courses is Advanced Operating System, which had a limited number of top students getting permission to enroll. In groups of two, we developed a simple operating system based on microkernel seL4. The workload was at least three times of other courses', and I had to enroll full time coursework at the same time to satisfy requirements for international students. Completing this challenging OS project taught me many technical skills and increased my confidence in my knowledge of computer science.

In my undergraduate second year, to further my skills, I applied to join in the time-honored robot soccer team rUNSWift, where I got the opportunity to work with the elite students in the team and competed in the Standard Platform League of the worldwide robotics competition RoboCup. As a traditional powerhouse, rUNSWift mainly consisted of senior students and graduate students, and green hands like me were unlikely to be considered. Despite this, I still knocked on the door of the lab with courage and convinced the team with my sincerity and resolution. As the only international student in the team when I joined, I had to overcome the culture and language barriers in addition to technical mastery gaps. However, the process of integrating into the group improved my team collaboration and communication skills.

During my three years of work with rUNSWift, I have achieved growth though seizing every opportunity to sharpen my academic capabilities. I was assigned to rewrite the binarization in vision module, which was the first major contribution that I made to the team. Since this part of code would run more than 50 times per second throughout the game, the efficiency of it played a vital role for the entire system. To enhance efficiency, I utilized the performance of the language by modifying the code from the simple version of dozens of lines to the amount of around 500 lines, which saved nearly half of the original running time. However, the number of bugs could inevitably increase at the same time. To address it, I deliberately designed a series of tests which I carried out with prudence and patience, which deeply impressed the other team members. In view of my rapid advancement, I was trusted to shoulder a more critical task about new generation Field Feature Detector. When I took it over in the beginning, I realized that it was way more difficult than I expected and there were a lot of leftover problems in the previous version. For consecutive months, I had to work all the way through midnight to accelerate the work progress while ensuring good performance in curricular study in parallel. Within a year, I had become one of the key players in the team. I was selected as a major team member to represent UNSW to compete in RoboCup 2018 and 2019, helping my team get 8th place in the first year and then progress to the third place in the second year. Beyond that, the more inspiring thing to me is the former team leader's parting advice that he had never expected I could stick with it and my perseverance and talent surprised and impressed him.

After graduated from undergraduate school, I came to University of California, San Diego (UCSD) for a M.S. degree in Computer Science, to further my knowledge in relevant fields, because MLsys is such a field needs a lot of background knowledge in machine learning and systems. I took more machine learning courses, and did some research works in MLsys, especially getting a deeper understanding of system research in practice. Thus, my knowledge in machine learning and systems, research training in MLsys and my qualities can secure me a successful Ph.D., especially the qualities of diligence, perseverance, and resilience.