The film ‘matrix’ ,which I have watched long time ago, captured my interest in computer science at first. Although I only have little impression about the plots, what I still remember is the computer screen with all those fancy codes on it and that did fire up my interest on computer science when I was young, simply because it looks cool. After I got in touch with programming, the sense of achievement I gain when I finished the first program, which is printing ‘hello world’, is enormous and that is the combustion promoter of my enthusiasm on computer science.

Initially, my interest is only on programming since during the process of programming, it seems that a world that can achieve everything in my mind is waiting for me there. Nevertheless, in the study of AS level, I realized that theory is as important as programming skills since all the applications cannot be achieved without the support of theoretical knowledge so instead of what I did in the IGCSE level, I put much more effort on understanding of theory like the internal structure of hardware and how the system actually works. Within the learning procedure, I am really impressed by the wisdom of previous computer scientist in terms of their creativity. I really hope I could be a computer scientist like them in order to contribute what I can by using my own idea.

Talking about the problems I faced, what directly jumped out of my mind is the competition I took part in our school, which is called Dulwich Programming Challenge. The question requires us to search for words that satisfied some certain limitations in a list that contains over 10000 words in a text file. I actually finished the coding in half an hour but I cannot get the result that I want even though there is no syntax error. After two hours useless debugging, I asked help from one of my friends who also attend this programming challenge. He told me a skill that is printing the result line by line to find which part of the code has error. However, even though I located the line that gave me the result that was not satisfied, I still have no idea how to correct it. Finally, I found that when I extract the letters from the word, since I uses slice, I also extract the end of line, which messed up the entire program.

In addition, I also won the third place of 2019 SPC Suzhou programming competition. However, I did not manage to code an algorithm called KNN classifier. After the competition, I did some research about this algorithm. This algorithm aims to classify an object by comparing the number of classified objects in a range--k to distinguish its type. I did not realize that all the relative data can be stored in a multi-dimension array so that the ‘distance’ between the data of the object and others could be calculated than by checking the K nearest neighbor, the object can be classified.

In the project I did when I joint the tianjing artificial intelligence researching activity, I had a general comprehension of Iris recognition, but I was wondering how could the computer recognize the part of Iris of the image of the entire eye. Then I browsed plenty of documents and websites and finally found the solution in the daugmen’s algorithm. It basically find the iris by comparing the rate of changing on the sum of values of the color of pixels at the edge a circle with radius ‘r’ and center that is center of the pupil. If the rate of changing becomes extremely obvious at a particular ‘r’, then it indicates that the edge of the circle with radius ‘r’ is the boundary of the iris and other parts of a human eye.

In that project, on one day, when I was waked by my alarm clock and pressed it up, I fell in asleep again. Afterwards, I had an idea that is it possible that I could code a program that can distinguish whether the user has been waken after the alarm is shut and alarm the user again if he/she falls in asleep again. By installing an micro-camera on the clock, we can comparing the difference of the sum of the RGB value of all the pixels in the pictures taken before and after the alarm is shut by the user to differentiate whether the user has gotten up. However, how much difference is appropriate to say that the user is still on the bed or has leaved the bed becomes the highest barrier of my entire program. Sometimes when the user shut the alarm, he/she may fall in asleep again with a different sleeping position and that causes the change of sum of RGB values as well. To address this problem, I took a survey in our grade to ask students’ roommates to take pictures of them when they are still in asleep and the picture when they leave the bed and send those photos to my emails. After receiving around 100 photos provided from all my zealous classmates, I wrote a program to get the average percentage difference between the photo when they are in asleep and waked up and leave the bed. The final result of the average difference is about 30%. With this data, my program could perform better on recognizing whether the user is still on the bed or not. Although the alarming clock is temporarily not possible for me to make, I managed to code the entire program. Moreover, I think it is feasible that by upload the times that the users fall in asleep again and the time period they sleep, it is achievable to find the best-fit time period for the user to sleep since the better sleeping quality we have, we can be more awake so the times we fall in asleep again would be less.

Though my learning experience in computer science, I feel that those well-designed algorithms, complex but delicate logic and all other fascinating stuff in computer science become more and more attractive. Every time when I really understand the reason why computer scientists set things up like what they shows, I would be impressed. I believe my study in university could give me guidance to further exploration in computer science.