Personal Statement

1. Background

1.1 Education Experience

After being accepted into Southern University of Science and Technology (SUSTech), I tried to explore my interests in different areas, as every student needs to learn basic scientific courses including mathematics, physics, chemistry, biology, and computer science. Students only need to choose a major at the end of the first or second year.

During the first year, I found high motivation in both computer science, especially programming language theory and some discrete math. Then I chose Data Science and Big Data Technology as my major. I thought Data Science handles real-world problems with practical methods, which is charming.

However, I found that my motivation was not Data Science itself, but problem-solving with mathematical tools and programming languages. So I changed my major to Applied Mathematics to prepare the theoretical tools I needed. And at the same time, I chose many important courses that I thought would be useful, some algorithm, ML, AI-related courses held by the Department of Computer Science.

After finishing the courses of the third year, now I am skilled in basic algorithms and familiar with mathematics. Therefore, I would like to receive more training in related fields such as ML, especially AI for science and Applied Math.

1.2 Academic Experience

During the summer vacation of my second year, I got in touch with Prof. Zhilin Li from North Carolina State University (NCSU) to take a summer research project. However, COVID-19 made it online. Prof. Li taught us some basic Machine Learning methods in research. This was also the first time I learned about AI for Science. As the research was teaching some basic skills in research, we did not publish any results.

Then at the beginning of my third year, I chose CS405 Machine Learning taught by Prof. Qi Hao. And for the final project, our group chose Traffic Sign Detection and Recognition (TSDR) as the theme. We learned some basic ideas of DL and also the construction of YOLOv5 and its convenience. Then we implemented YOLOv5 for TSDR and LaneATT for a bonus function. Then a partner created a simple method based on the Imaging Principle of the Camera to calculate the distance between cars.

Then in the sixth semester, I followed a PhD student's senior Yang Li from my Academic Advisor Prof. Zhen Zhang to learn Neural Network methods in Partial Differential Equation (PDE) solving. I learned basic PINNS and then implemented the Neural Galerkin Scheme method in my Github repository Neural-Network-PDE.

1.3 Skills

Computer Science

As I am interested in Programming Language Theory, I spent some time learning and becoming skilled at many different programming languages. I trained my Java programming in Algorithm, Python for ML and DL, and also Julia for Numerical Mathematics.

I am also familiar with basic Linux knowledge as I use my Academic Advisor's server for Neural Network Training. I learned useful commands of Git, Github and constructed my self-used file systems and knowledge systems.

Mathematics and Data Science

I majored in Applied Mathematics which provides systematic training in Mathematics. I learned Calculus, Analysis, Algebra and other important mathematical courses. And as I studied Data Science in my second year, I am familiar with basic Data Analysis and Statistical Methods.

Writing and Other Skills

I am skilled at LaTex writing especially mathematical content. I am good at Chinese Rock Music as I am a vocalist in a new band.

2. Motivation

2.1 Self Motivation

I have broad interests in different scientific fields, and I think it was the best choice for me to choose Applied Mathematics. And I plan to do some work on AI for Science or continue my learning in Applied Mathematics. And I will maintain high motivation in learning new knowledge.

2.2 Application Motivation

First of all, there are many similarities between Westlake University and Southern University of Science and Technology as well. For example, they are both research universities with excellent young scholars and research strength.

In addition, I think Hangzhou is a good city to live in, and I think it is equally important to consider the livability of the city beyond the output of intellectual learning and academics.

An important point is that I found a lot of overlap between Professor Wu's research area and the direction I am interested in, and I think I can be more motivated to study and progress.

3. Future Plan

In the last year of my college, I plan to train myself to be a Julia developer, implement some useful frameworks until there is no one else's work in the corresponding field. I also want to learn more Physics, as I thought it might be important in problem-solving.

And I will make myself full of practical skills, enhance the necessary programming skills, learn more mathematics and put my abilities to solve real-world problems, be an ideal applied mathematician.

I hope I will have time to learn knowledge concentratedly in the first several years of my future doctoral life. I plan to make myself a real scholar, thus accumulation is necessary.