Dear ADMISSIONS,

I am Liu Aofan, a 20th-grade **software engineering** major from **Xiamen University**. I am writing to express my strong interest in pursuing graduate studies at XXX University. As an individual with a deep passion for computer science, I am eager to continue my academic journey in an environment known for its outstanding research programs and collaborative community. To provide you with a better understanding of who I am, I would like to introduce myself in the following four aspects.

* **Academic Background**

I have consistently achieved excellent academic performance throughout my academic journey. In the first five semesters, my weighted score was **3.71/4.0**, with a weighted score of **94.2/100**. I **ranked second** in my major. I have excelled in my professional courses and have a strong command of English (**IELTS 7.0**). I have high aspirations of obtaining postgraduate qualifications. During my time in school, I have been awarded the comprehensive scholarship every year, which is given to the top 10% of students in my major. I have also received numerous national awards, including a **national silver medal, two national bronze medal in the Internet+ competitions, and an international first prize in the Mathematical Modeling Competition** (M Award).

Additionally, I have received **seven national awards**, including the **national second prize in the National Contemporary Mathematical Modeling Contest for College Students**, and approximately 20 other awards. Furthermore, I have built a solid foundation in my field, studying courses such as Introduction to Software Engineering, Data Structure, Operating System Principles, Computer Networks, Object-Oriented Language, and Design Algorithm Design and Analysis. These experiences have cultivated a strong learning attitude, leadership skills, and a passion for computer science.

* **Research Experience**

I have actively participated in research projects throughout my academic journey. Since 2020, I have been conducting research in our university's laboratory, where I have authored or co-authored **four papers** (three as the first author and one as the corresponding author). One of the papers is currently in the **Minor Revision** stage for submission to an **SCI journal**, and two papers have been published in **EI Compendia**. Additionally, I have applied for a **national utility model patent**, and I possess excellent skills in writing reviews and reports. During my internship, I mastered the use of various toolkits and software for experimental data analysis and graphing, such as Pandas, NumPy, Matplotlib, Prism, and Origin.

In the German traffic light recognition project, I served as the project lead and conducted research using the YOLOv5 algorithm. I implemented the **Schedule Learning Rate** algorithm to optimize the learning rate of the model, thereby improving recognition accuracy and performance. I also employed various algorithms, such as grayscale transformation, image segmentation, and histogram enhancement, during the preprocessing stage to further enhance the model's performance. Through these efforts, I successfully enhanced the accuracy of the traffic sign recognition system. The results of this research are presented in my paper titled "**Deep Convolutional Neural Network for Enhancing Traffic Sign Recognition Developed on YOLO V5**" which is currently being submitted to the "**IEEE Canadian Journal of Electrical and Computer Engineering.**"

In the project "**Intelligent Manufacturing Based on BCoT: Enhanced Precision Measurement Management System**" I proposed a memory performance management system based on smart contracts. I developed a memory management system in **Solidity** to verify the minimum viable product and prepared a detailed experimental report using **LaTeX**. I also presented a paper on this project at the **5th iCETiC** conference in Chester, UK. This project showcases my research process, results, and conclusions, highlighting my scientific research abilities and document writing skills.

As a core member of the project "Prioritization of 17 Sustainable Development Goals of the United Nations Based on **NLP** Technology" in the American Undergraduate Mathematical Contest in Modeling, I proficiently used **LaTeX** for paper writing. Throughout the project, I utilized the Requests library to crawl relevant papers from the United Nations official website, employed the stuttering thesaurus for word segmentation using the **Trie** tree method, performed data cleaning, filtered stop words based on the Baidu stop word library, and determined the relevance of terms using the **TF-IDF** algorithm. Our project received the **international first prize** in the contest.

These research experiences have acquainted me with cutting-edge technologies in the fields of artificial intelligence, computer vision, and natural language processing, broadening my horizons and deepening my research interests. The challenges encountered in competitions and scientific research have taught me the importance of identifying problems and implementing improvements to find the right direction. Above all, these experiences have instilled in me a persistent spirit, a love for learning, and the tenacity required to achieve success.

* **Practical Activities**

I have actively engaged in various practical activities during my undergraduate studies. In September 21, I represented my university in the international volunteer activity **"Share the Future"** organized jointly by the University of Nottingham and the **AIESEC International Volunteer Association**. I also worked as an assistant software engineer at Shandong Shuwei Technology during an internship, where I focused on the application of RPA automation in the intelligent personnel system. In addition, I participated in the Space App Challenge Hackathon organized by **NASA**, collaborating with developers from around the world. Furthermore, I am actively involved in open-source projects. The Chinese translation of the official **Selenium** documentation, for which my organization is responsible, has garnered 290 Stars on **GitHub**.

* **Future Planning**

I have devised a step-by-step plan to guide my future endeavors. In the initial stage of my research, I intend to immerse myself in relevant professional books and core authoritative journals. I will actively participate in group meetings and seek guidance from senior colleagues. During the subsequent stage, I will engage in scientific research projects and, under the guidance of my supervisor, strive to produce high-level papers. In the final phase of my research, I will diligently refine my graduation thesis, further enhancing my academic research abilities.

Although I recognize that there is much more knowledge to acquire, I am genuinely passionate about this field, and I aspire to contribute significantly to its advancement at the graduate level. If given the opportunity to pursue graduate studies at your esteemed institution, I intend to focus on the following areas: first, deepening my foundation in mathematics and computer science by continuously learning and mastering the latest theories and technologies; second, actively seeking interdisciplinary collaborations with experts from other fields to solve complex scientific and engineering problems. For instance, I am keen to explore the intersection of computing with disciplines such as biology, chemistry, and medicine to broaden my horizons and foster innovative ideas.

I sincerely hope to be granted the opportunity to join XXX's master's program. I wish you a smooth work process and good health!

Yours Sincerely,

Liu Aofan