Dear Respected Professor,

Greetings! I am deeply grateful for your time and effort in reviewing my personal statement amidst your busy schedule. My name is Shi Yu Wang, and I am a 2021 undergraduate student majoring in Mathematics and Applied Mathematics at Harbin Engineering University.

Inspired by the rigorous academic attitude and rich scholarly atmosphere at Renmin University of China, I sincerely apply for the direct doctoral program in Data Science and Artificial Intelligence. Since my undergraduate studies, I have developed a profound interest in the field of data science and artificial intelligence. With the advancement of technology, data science and artificial intelligence have become crucial driving forces for social progress and economic development. These technologies have exhibited tremendous potential in various domains, ranging from healthcare and finance to autonomous driving. I aspire to contribute my efforts to the development of this field through in-depth research and study.

My decision to choose Renmin University of China is primarily driven by the university's outstanding faculty and research environment in data science and artificial intelligence. The university boasts numerous renowned experts and scholars in these fields, both domestically and internationally, and has achieved remarkable research accomplishments. Furthermore, Renmin University of China emphasizes an interdisciplinary research atmosphere, which aligns perfectly with the multidisciplinary nature of data science and artificial intelligence. I believe that in such an exceptional academic environment, I will be better positioned to broaden my horizons, enhance my research capabilities, and foster innovative thinking. Additionally, the university's abundant academic resources and international exchange opportunities provide students with a vast platform for development, and I hope to leverage these resources to continuously improve myself and become an outstanding scholar.

In the following sections, I will introduce myself from the perspectives of my academic background, competition experience, comprehensive qualities, and future plans.

I. Academic Background

During my undergraduate studies, I have consistently maintained a rigorous approach to learning and a diligent work ethic. In the first five semesters, I have received the University's Outstanding Student Scholarship, such as the Second-Class Scholarship and the Third-Class Scholarship. Furthermore, in the first five semesters, my overall grade was 89.5/100, ranking 5th out of 96 students, placing me in the top 5.2%. In addition, I actively studied English and successfully passed the College English Test Band 4 and Band 6 examinations, scoring 582 in CET 4 and 466 in CET 6, demonstrating proficient English listening, speaking, reading, and writing abilities, enabling me to comprehend English literature. Moreover, during my undergraduate studies, I self-studied the fundamentals of machine learning and deep learning, as well as related knowledge, and read the book "Approching Almost Any Machine Learing Problem." This provided me with an understanding and mastery of various techniques for addressing practical machine learning problems. I also experimented with numerous machine learning algorithms and classic deep learning networks, enhancing my programming skills and comprehension of neural networks.

II. Competition Experience

Throughout my undergraduate years, I actively participated in various academic competitions, including innovation and entrepreneurship as well as mathematical modeling contests. In mathematical modeling competitions, I was responsible for problem analysis and modeling, and I achieved honors such as the Honorable Mention in the American Undergraduate Mathematics Modeling Contest, the National First Prize in the National Undergraduate Mathematical Contest in Modeling, and the Provincial First Prize in the Northeast University Student Mathematical Modeling Contest. Additionally, I obtained the Provincial Third Prize in the National College Student Mathematical Competition. To prepare for modeling competitions, I self-studied machine learning and deep learning knowledge. In the 2023 American Modeling Contest, we attempted to use the Long Short-Term Memory (LSTM) model to predict and explain the fluctuations in the reported number of results for the Wordle game. Then, we established a prediction model based on convolutional neural networks to forecast the distribution of future data reporting results and analyzed the inaccuracies of the model and predictions. Finally, we successfully established a difficulty-based word classification model by clustering words using a Gaussian mixture model and calculating the average information entropy for each category as a label.

In the 2024 American Modeling Contest, we utilized a decision tree model with chained gradient ascent to capture the game situation, predicting players' winning probabilities by inputting the current stage of the competition and the on-field situation, thereby obtaining real-time updates of players' winning probabilities. Furthermore, we constructed a random forest model to analyze which factors had the greatest impact on players' performance. Through an in-depth analysis of misclassified matches and players, we discovered a previously unconsidered yet significant factor: performance consistency. We then incorporated this factor as an indicator, effectively improving the prediction accuracy.

III. Comprehensive Qualities

In terms of comprehensive qualities, I participated in the "Internet+" volunteer activity and summer social practice. During the summer social practice activity, my team was awarded the title of Outstanding Provincial Team. These practical experiences enriched my knowledge, cultivated my teamwork spirit and comprehensive practical abilities, and promoted my overall development. Additionally, I actively engaged with the Party organization, regularly participating in team activities, diligently completing the "Youth Learning" program, and earnestly studying Marxist theory and Party policies. In the ideological and political courses, I achieved scores above 90.

IV. Future Plans

Through a deep understanding of the doctoral program at Renmin University's Department of Mathematics and an analysis of my comprehensive abilities, I have formulated the following study plan:

1. First Stage: Professional Course Study and Research Direction Specification

In the first year of study, I will focus on core courses in the mathematics discipline to solidify my theoretical foundation. During this period, through interactions with my supervisor and peers, active participation in academic seminars and discussions, I will gain insights into the cutting-edge dynamics of the mathematical field and gradually clarify my research direction.

2. Second Stage: Enhancement of Research Capabilities and Participation in Research Projects

After completing the professional foundation courses, I will shift my focus to cultivating research abilities. Under the guidance of my supervisor, I will actively engage in research projects, learning research methods and experimental skills. Through practical research project involvement, I will progressively enhance my ability to solve complex mathematical problems and develop a rigorous research attitude and innovative thinking.

3. Third Stage: In-depth Literature Review and Innovative Research

In the later research stage, combining my supervisor's guidance and research project directions, I will conduct in-depth literature reviews and reading to grasp the latest research trends and academic advancements. Through systematic learning and reflection, I will explore my research ideas and seek innovative points. Based on cutting-edge research, I will propose innovative mathematical perspectives and technical approaches, striving to achieve breakthroughs in academia.

Furthermore, during my graduate studies, I plan to actively participate in academic exchange activities and attend domestic and international mathematical conferences. I will present my research findings to peers, absorb their experiences and insights, and broaden my horizons. Simultaneously, I will be attentive to the applications of mathematics in other disciplines and explore the possibilities of interdisciplinary research, laying a solid foundation for my future career development.

In summary, through systematic coursework, research practice, and academic exchange, I will comprehensively enhance my professional competencies and research abilities, establishing a solid foundation for my future development in the field of mathematics. The above represents my analysis and planning regarding my personal situation. Thank you again for your review!