Personal Statement

It is remarkable that a mere one hundred-odd keys on a computer keyboard can make the digital realm go from zero to one, influencing the life habits of thousands of people. I could not refrain from marveling at data science's power, so I determined to apply for the MSc Computer Science (Financial Computing Stream) at the University of Hong Kong, keen to gravitate toward the professional sphere of "know everything about anything and know anything about everything". In retrospect, I have gradually amassed the fragments of my cognitive jigsaw of understanding data science. As a student majoring in Computer Science and Technology at Zhejiang University, I have received profoundly insightful guidance on ideas from professional mentors through core courses such as *Fundamentals of Data Structures*, *Advanced Data Structure & Algorithm Analysis*, *Probability and Mathematical Statistics*, *Linear Algebra*, *Database System*, *Machine Learning and Data Analysis*, and *Artificial Intelligence*. Meanwhile, study experience of participating in an international exchange program at the University of Oxford allowed me to plunge into Data Science with Python course, systematically studied and mastered the core skills of data science, including data cleaning and preprocessing, exploratory data analysis, machine learning modeling and evaluation as well as garnered the opportunity to conduct international research in an environment of English-only lectures and academic discussions, which comprehensively improved my cross-cultural communication experience, academic communication skills, and teamwork abilities. One of the gains from this trip lies in the Grade A- score. More importantly, I use Python and its commonly used libraries such as Pandas, NumPy, Scikit-learn, and Matplotlib to solve practical data analysis problems in the course of Programming practice. Furthermore, I finalised the entire process, from data acquisition and feature engineering to model optimisation, alongside my team partners. Not only can I elevate proficiency in algorithm comprehension and implementation, but I am also lucidly aware that the value of data science resides in data-driven decision-making and prediction. Benefiting from the style of valuing case analysis and cross-disciplinary application in the University of Oxford class, I acquired a comprehensive approach to combining statistics, computer science, and application scenarios in terms of statistical processing.

As the exploration deepens, I come to realise that the financial sector is rapidly walking towards data-driven and intelligent, among which the technological approaches I possess play a significant role. Rather than the unadulterated computer application, I cultivated a profound interest in how data science methods drive financial and economic advancement. Under the guidance of Dr Raja Sooriamurthi and the joint efforts of the team, I used economic indicators such as GDP, population density, and unemployment rate as our research subjects, proposed and implemented

the Geographically Weighted Neural Network Regression (GNNWR) and explored how to improve the accuracy of economic forecasting with the support of machine learning and statistical methods. For me, I concentrated on completing the collection, cleaning and preprocessing of the preliminary dataset, optimising the data processing model, and applying the model to predict new datasets. Ultimately, we co-authored a paper entitled *Spatial Economic Correlations via Geographically Weighted Neural Network Regression with A New Dataset*, which was accepted by the 2nd International Conference on Machine Learning and Automation (CONF-MLA2024) and published in Applied and Computational Engineering (Print ISSN:2755-2721). I perceive that the ability to navigate machine learning methods to study economic and financial data is paramount because it can provide a methodological foundation for financial risk modelling, regional economic forecasting, and investment decision support. In truth, there exists an inherent connection between this work and the fintech field. For traditional models, it is difficult to process economic and financial data flexibly, while the GNNWR method is conducive to enhancing the fitting ability of traditional statistical models after leveraging neural networks, thereby yielding more precise predictions for regional economic growth. Thanks to the practice, I exercised the ability to apply modelling techniques to financial and economic data and accumulated the experience that can be transferred to scenarios such as financial market analysis, risk modelling, and intelligent investment and financing. Envisioning this prospect concerning the combination of computer methods and financial economic scenarios, I aspire to delve into the depths of this aspect. Thus, I am applying for admission to MSc Computer Science (Financial Computing Stream) at the Chinese University of Hong Kong to attain this goal.

The programme focuses on computational applications within the financial industry, emphasising practical numerical methods and prioritising techniques directly applicable to business and financial analysis. I believe this will rapidly enhance my ability to solve complex real-world problems. At present, I have made some initial preparations through learning by myself and practising data mining and regression analysis methods. After graduation, I am resolved to work in a fintech or data science-related role, honing my skills to navigate machine learning and statistical modelling methods with ease to improve the scientific nature of forecasting and decision-making. After my accumulation of several years, I wish to grow into an interdisciplinary data science talent and drive the deep application of AI in finance, economics, and social sciences, adhering to a pragmatic approach with unremitting perseverance.