From basic programming to frequency domain analysis in digital signal processing and complex embedded system design, each step of my academic journey has reinforced my belief that theory can only come to life through practice. This is precisely why I have chosen to pursue advanced studies in Electrical and Computer Engineering, an area that transforms solid theory into effective applications.

I obtained my Bachelor’s Degree in Communication Engineering at Zhejiang University of Science and Technology, where I studied a range of courses demonstrating proficiency in fundamental areas of computer science and mathematics, including basic programming, data structures, embedded systems, microcontrollers, and digital signal processing and system analysis. Through C, C++, and data structures courses, I developed solid programming skills and could handle tasks such as embedded programming and algorithm optimization. Additionally, Linear Algebra, Advanced Mathematics, and Functions of Complex Variables equipped me with the skills necessary for machine learning and data analysis.

My strengths lie in my solid foundation and practical capabilities in communication engineering, data structures, and machine learning. I deeply understand key concepts in communication principles and wireless communication, such as signal and spectrum analysis, modulation and demodulation, propagation models, and fading effects. In the area of data structures, I am familiar with standard algorithms and structures (such as trees, graphs, heaps, etc.) and can adapt these tools to solve complex problems with flexibility. Meanwhile, I have a solid mathematical foundation, covering advanced mathematics, linear algebra, probability statistics, etc., which supports me in carrying out complex problem modelling and analysis. My expertise in machine learning spans algorithms like supervised learning, support vector machines, and reinforcement learning. I have gained practical experience in digital signal processing and system analysis, applying techniques like Fourier transforms, Z-transforms, and digital filter design to resolve practical problems.

Throughout my research experiences, both within and outside the university, I have delved deeply into mathematics, algorithms, and theoretical studies, fostering an interdisciplinary approach to problem-solving. I have continuously honed my programming skills, theoretical reasoning, and ability to tackle complex issues. For instance, I self-learned core natural language processing (NLP) concepts in the Research on Text Classification Algorithms, particularly the Transformer model and attention mechanisms. Through experimentation and analysis, I built a solid foundation for future studies in machine learning and artificial intelligence, fueling my passion for deeper exploration within computer science. In the Research on the Upper and Lower Bounds of the Gaussian Q-function, I gained a deep understanding of the properties of the Gaussian Q-function, applying Jensen’s inequality and integration by parts to derive its upper bound. This work culminated in a paper published in *Electronics Letters* in November 2023, providing me with valuable experience in research accomplishment.

Working as a Supervision Engineer for Wireless Network Base Stations at Bestlink Technologies, I was responsible for reviewing design blueprints, equipment commissioning, optimizing signal coverage systems, supervising project progress, and providing technical training. Also, my involvement in CAD drafting and remote equipment room design enhanced my skills in integrating hardware and software. In my work-study position at the C1-515 Wireless Communication Laboratory, I further developed skills in laboratory equipment management, maintaining Windows and Linux systems, and planning and installing network cabling and devices. I have always adhered to a rigorous academic spirit, which I have applied consistently throughout my four years at the university in research and work positions. I make it a point to document everything, ensuring that every task is thoroughly recorded. This approach helps me quickly find solutions to similar problems, improve efficiency, and facilitate knowledge sharing. I believe cultivating good work habits is essential for achieving long-term success in research and my career.

My experience in digital signal processing, data structures, and embedded systems makes me an excellent candidate for USC’s Master of Science in Electrical and Computer Engineering with a focus on Machine Learning and Data Science. USC is my No.1 dream school, not only because of its superior location at the heart of the U.S. economy and technology but also due to its strong research capabilities and innovative atmosphere. The curriculum was highly aligned with my academic interests, providing cutting-edge machine learning and data science training while closely integrating industry needs. Upon graduation, I will have the opportunity to compete for software engineering positions at leading companies such as Alibaba, Amazon, and ByteDance.

I am a candidate who possesses both innovative thinking and a focus on practical execution. I hope that every research project can evolve from an idea to an implementation. Due to the broad range and fast pace of course exploration during my undergraduate, I might lose the chance to specialize in a particular field profoundly. For my future postgraduate studies, I will continue my research in embedded systems, digital signal processing, data analytics, and practical programming. The Master’s program in Electrical and Computer Engineering at USC represents a valuable opportunity to realize my academic pursuit and open up new career prospects. I look forward to being part of a vibrant and diverse educational environment that fosters creativity, challenges traditional norms, and promotes intellectual freedom.